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FTS 2000: GSA

IBM's 20-year pact with Hogan Sys-tems, Inc. could alter the shape of the banking software market. Page 146. ographics still draws a crowd, despite the increasing presence of optical

Canaan Computer Corp. will sell its department systems through IBM's former leading value-added reseller. Page 6.

TOP OF THE NEWS

Software AG of North America rolls out support for IBM's SQL. Page 10. Novell, inc.'s direct sales offerts have some of its top customers worried. Page

The vintage-1971 Keebak-1 is designated the earliest commercial microcomputer. Page 33.

MIS and vendors of latest generation high-end computers are not speaking the same language Page 25. IBM System/38 users have been ex-pecting a new high-end system for many months, with some observers predicting

a third-quarter 1986 introduction. But announcement of what has been known unofficially as the Model 60 may come much sooner - tomorrow, according to some IBM watchers. In addition to the Model 60, IBM is rumored to be intro ing enhanced versions of low-end System/38s and a high-density replacement for the 3370 disk drive, which would be lcomed by selected System/38 users ning disk-in tions and have outgrown the 571M-byte 3370.

pected to introduce support for Unix on its Spectrum machines, the HP Series 3000 Models 830 and 850. In June, HP is

expected to announce several offerings in its line of computer-aided engineering noftware See NEWS page 4

Users await

Evolving MAP/TOP specs confront joint users group

Elisabeth Horwitt SEATTLE — Despite reported progr toward usable Manufacturing Automation Protocol and Technical Office Protocol specifications and products, some attend-ees at the MAP/TOP Users' Group Meeting held last week expressed caution about committing themselves to the still-evolv-

ing protocols.

Charles Gardner, chairman of the MAP/
TOP Steering Committee, assured an audience of more than 500 attendees that "we're moving from the awareness to the conviction stage." But he admitted that there was still the "difficult issue" of how

See USERS page 6

Merger battle may lose buyers

By Alan Alper NEW YORK — A protracted hostile at-tempt by Burroughs Corp to acquire Sperry Corp. could force prospective customers rectly into IBM's embrace and could seri ously damage both firms' long-term fiscal solveney industry observery contended

That analysis emerged as Sperry, after ne days of silence, rejected Burroughs \$70-a-share acquisition proposal, claiming the merger was not in its shareholders' or customers' best interests. Sperry made a conditional offer to repurchase the reining 29.5 million outstanding shares at

FCC move protocol fixes eases service restrictions

> By Mitch Betts WASHINGTON, D.C. — The Federal nications Commission last dropped regulations that required AT&T and the seven regional holding companies to offer enhanced services through sens-

In its so-called Third Computer Inquiry ruling, the PCC eliminated a 1980 policy requiring separate subsidiaries to market offerings of computerized communications services, such as packet switching and

youre mail Although the action was seen as a major step toward further telecommunicatio tion, no flood of new services is expected soon as a result of the PCC decision. The regional holding companies still must obtain waivers from U.S. District Court Judge Harold H. Greene, who over-sees the AT&T divestiture agreements, in order to offer certain information services

agency officials noted Many business communications managers supported the move to kill the separate subsidiary rule, provided that strict ac-counting rules and other safeguards are established to protect users' interests

"Structural separation has created dis incentives for technological innovation and has denied users a single point of interface for systems solutions," said a spokesman for the Association of Data ations Users, based in Bloom

ington, Minn.
"This is one small step in the right di "said Robert Ellis, president of the Aries Group, Inc., a Rockville, Md.-based consulting firm specializing in voice and data networks. "Anything that gets rid of that artificial separation has to be in the interest of the end user," he said. Edwin B. Spievack, president of the

See FCC page 6

CW EXCLUSIVE

Beyond commodity: IBM's top PC executive talks strategy

tanding against the tide of inexpen-sive clones, IBM will price aggres-sively against contenders in the low-end personal computer market, En-try Systems Division President William we declared last week But Lowe Insisted that corporate merica's micro buyers should look be-end pricing if they want to take advan-

ons opt ced technology features now on the rizon.

The strack of the bargain-basement ones is just the latest challenge to M's Personal Computer sales, but the IBM's Pe

million standard PCs will ship this yes In 1980, Lowe, then head of an IBM story in Bocs Raton, Fla., gave the late Phillip Estridge the go-ahead to create the PC. During the next few years, as Lowe took a series of high-level executive jobs elsewhere at IBM, the PC group sky-rocketed from a handful of peo-ple into a major IBM division

ith 10,000 employees. Lowe, 45, who joined IBM in 1962 as a test engineer, returned to head ESD in March 1985. Interviewed last week at the divi on's headquarters, he outlined some ans for the Personal Computer's future in large corporations

CW: You've been saying that PCs are not ly a commodity business. Why not? Well, computers are programma-ble. Technology is really exploding as fast now, and over the next five to 10 years, as it had

been in the past I see us providing more function and more applications in machines that embody this advanced technology as we go through time

The PC is a moving machine It's not a static design point, and I think the new functions and es we'll be providing will be attractive to a lot of people.



Knowledge workers' changing needs affect MIS, exec says

By Peggy Wett SAN FRANCISCO — Today's "knowledge workers" represent a new majority of U.S. workers whose changing needs are forcing traditional MIS to loosen its control over cor-

rate information resources, an ex-utive of a leading information rvices company said last week. Robert E. Weissman, president and Robert E. Weissman, president and chief operating officer of Dun & Bradstreet Corp., speaking at a con-ference of the Association for Info-mation and Image Management, sai-ded users are dramatically altering

the role of MIS. There is an information rev tion going on, with end users wre control from the traditional wielders of power," Weissman said. Data access on more desktops since the proliferation of persona puters as well as an information xplosion assisted by more accessible nass storage, is spurring the savvy rorkers, according to Weissman, bringing forth promises of our new

In the case of Dun & Bradstreet, which has been described as the larg-

"We don't think of ourselves as be-ing in the information market," he said. "We define a market as having commercial commodities, cost struc-tures and customers. I've never taken a company to lunch." The market is the people whose needs Dun & Brad-

reet meets, he said.

That approach and the use of per-mal computers and, generally, wide data access in meeting those needs as enabled Dun & Bradstreet to dou

ble revenue and triple profits in the past five years, Weissman said. He added in a later interview that MIS managers need to adapt accord-ingly. "MIS managers are an endan-

ingly. "MIS managers are an endan-pered species if they don't realize the definition of the critical leverage point has changed." Weissman said. "The largest, most expensive, least understood part of the equation [to meet a user's need] is the CPU."

Just as the computer is learning to cus not on data for sale, but on the tocus not on data for sake, but on the customer problem to be solved, the MIS department needs to deal with is-sues before systems, he added. In fact, Dun & Bradstreet has nev-er had an MIS director, he said. Com-

puters as a means of providing customer and user services "are so ound into the infrastructure of the ness that [computer use] grew up staneously," he said. He expects similar philosophies in

firms that emphasize problem solv-ing. 'The productivity of machines is ing. "The productivity of machines is no longer as important as at the productivity of people," he added. "The MIS manager shouldn't allow himself to be measured in computing capacity but on whether the system is responsive to the needs of the users. That's still not believed by some. And their success in that area is restricted to the extent that they resist it."

Microfilm alive, well at show Lack of standards slows - Milton Matake, a branch manager for

adoption of disk storage

SAN FRANCISCO - Optical disk lorage manufacturers were out in force for the annual Association for Information and Image Management show last week, but efficient, fast and relatively cheap micrographics techniques still drew the crowds.

"I've been hearing...micrograph-ics or microfilm is dead. It's passe. The technology is old — the wave of the future is optical disk," said Don-ald N. Frey, Bell & Howell Co. board chairman and chief executive officer, in his opening address. "But what we are now into is the latest of a long list of post-World War II technical

hypes.

Despite the rapidity developing new methods of electronic storage, paper still accounted for 96% of document management in 1985, he added Microfilm handled 5% of the load.

The show's nearly 10,000 at ees, while jostling for a look at the latest optical disk jukeboxes and ap-erture card printers, tended to concur that they were not abandoning microfilm or paper just yet.
"I haven't determined whether op

tical disks are archival enough" and whether they will simply last as lone as microfilm is known to endure, said

state library records in Frankfort, Ky, "I wish they'd come out with e standards

campion G. Jaques, a sales repre-sentative for Chicago-based Endata, Inc., publisher of parts and equip-ment catalogs for a variety of fields, id he was eyeing optical disks as other medium on which to present

another medium on which to present inventory and price listings. "It's interesting to see how every-one's direction has changed to accept new technology," he said, recalling that early Computer Output Manager recorders were "ostracized" at their reconsects were oscracione at their first appearance. He already produces catalogs on floppy disks, but the differences between formats only complicate that additional medium.

he said.

"But I see optical disks being involved at some time," he added." In hope It will be compatible, economical, and I'll be able to supply it." Micrographica' longevity ensures its place in storage technology, said larry J. Sugget, director of document farmy L. Sugget, director of document of the company of the c

"We have fiche, film and po Siegel said. "I think there'll always be a combination. I don't see micro-graphics going sway." But he said he would put optical disks to use for instantaneous retrieval, while keepis the film for archived copies that no to be read less frequently

In this issue

IBM reseller Jacore Systems com to market Canage Computer's Few major products announced at No

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tool/ 10 Prime Computer users at 10th anniversary meeting eager to view third-party vendor exhibits, despite efforts to

downplay by Prime and meeting orga-nizers/ 12 Commerce Department official blasts

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MICROCOMPUTERS

World's first commercial PC enshring in Computer Museum: Waznisk hel judge, speaks fondly of early days at Apple/ 33



Publishers and graphics profi warn of pertis of desktop publis

COMMUNICATIONS infotron, Applitek merger would med local- and wide-area net offenings/ 48

COMPUTER INDUSTRY adyne predicts quiet year after to ituous fiscal 1985 in which revenue

dropped, losses mounted and five company officers were indicted for BM's 20-year OEM agre

software firm and potential tor ask deal in software industry/ 148 nate Finance Commit

EXECUTIVE REPORT ctronic and voice mail may se sly merger candidates, but true in

merger candidates, but true inte-on is elusive. By Johanna Ambergration sin/ 53



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Taming CICS: Users of IBM's transaction processor find that making changes to their systems is not as diff-cult as they once thought. By Steve Pagott/ 77

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SyncBort DOS One smart cookie deserves another.

Merger battle may lose users

\$80 a share if Burroughs' cash tender offer for 33 million shares is successfullCW May 121

Martin Litsky, pr dent of the perry users group USE, suggested ast a drawn-out hostile takeover at pt by Burroughs of Sperry could ser both firms' efforts to expand their user bases. The primary con-cern, Litzky said, is that either Sperry's or Burroughs' mainframe lines would be discontinued if a

merger is consummated, despite Bur roughs' statements to the contrary. On a daily basis, executives are making decisions on the acquisition of computer systems. If they have two or three proposals in hand, one from Sperry, one from Burroughs and one from IBM, they may decide to go with IBM because of concern

you the future of the other two rms' product lines," Litzky said. "I can't imagine a combined com-any able to maintain two mainframe pany able to maintain two maintrame lines that are not compatible with one another," he added. Litzky lauded Sperry's rebuff of Burroughs. He said a merger of the two BUNCH companies would not

efit either firm's customers or reholders. "I don't believe that together they could have an impact on IBM," Litzky said. "They'd be just slightly bigger than DEC."

Meanwhile, the winner of the batthe for control of the New York-based Sperry would be saddled with an in-ordinate amount of debt. Burroughs said it would have to borrow \$3 bil-iion to acquire Sperry, and Sperry last week said it would have to bor-row \$2 billion to finance its stock

buy-back proposal.

"The question is, depending on the outcome, "What impact would such a debt load have on future R&D, manufactions expenses at

fecturing and marketing expenses at either firm." said one analyst who requested anonymity. The only ones who would benefit from all this are the financial institutions lending the

Late last week, in a letter to Sper-ry Chairman Gerald G. Probst, Bur-roughs Chairman W. Michael Blu-menthal said the Detroit firm is repared to "negotiate a meaningful crease" to its \$70 a share acquisi-

serry filing with the Securities and schange Commission, in which the sw York firm said, among other sings, it has considered selling itself, divesting of principal assets or forming a joint venture with another concern to defend against Burroughs' hostile takeover initiative.

arroughs was not expecting to pay \$70 a share; it knew there would be a counteroffer." noted Donald Haback, an analyst with Smith Barney.

facilities through a series of win

orts natural language options as

ing to accept \$68. This time the question is: How high is Burroughs willing to go?"

With the parameters of the deal now in place, analysts said negotia-tions between the two firms could be-gin in the \$75-a-share vicinity. At \$75 a share, the value of the acquisi-tion increases by \$500 million to \$4.6

The \$4.6 billion price tag is sure to dissuade all but the most serious of firms to try and out-bid Burroughs, analysts said. Sperry's conditional stock buy-back plan, however, would provide time for any of the potential tite knights mentioned, including AT&T, Chrysler Corp., Ford Motor Co., Honeywell, inc. and NCR Corp. to formulate a bid of their own.

"I can't imagine any of those firms starting cold and coming up with a acquisition plan in a short period of time," noted Harvey Poppel of acquisition and merger specialist Broad-view Associates. "Most of them move at the speed of a giacier when it

es to strategic decisions." The Sperry board recommended that Sperry stockholders not tender their shares until its buy-back plan numences. Sperry said it has \$800 million in funds and is negotiating a \$2 million credit facility with banks to finance its stock buy-back plan

Sperry last week filed a complaint in Delaware Chancery Court asking that the Court validate Sperry's tender proposal under Delaware law and enjoin Burroughs from bringing any legal action in any other court at-tacking its offer.

are also included. The Ramis II English Release 2 up-

ate adds natural language graphics and automatic processing of time-re-

lated expressions for interactive us-ers in the MVS and CMS environ-ments. It costs \$13,500 to \$27,000.

low users to generate Ramis II re-ports from DB2 and SQL/DS files us-

The DB2 and SQL/D8 interfaces al-

ris from DB2 and SqL/D5 lies us-g standard Ramis II report requests id cost \$2,250 to \$6,750. Ramis II Release 85.3 is currently

available for the VM/CMS, MVS and DOS/VSE environments for \$30,000

to \$90,000. It is provided free to current Ramis II users and is upwardly tible with previous releases

TOP OF THE NEWS

Availability of ATAT's Unix Sys-tam V Release 3 is still set for mid-year despite rumors of delays to year's end, according to Bill O'Shea, executive director of ATAT Information Systems' Soft-

ware Systems Division. A full dem-oratration of the product is sched-uled for the National Computer nference in Las Vegas in June

Free mainter Free maintenance of Sperry equipment for one year was in-cluded recently in the company's

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successful bid for a systems con-tract for the city of Pueblo, Colo., a move seen as continued aggression against its third-party resellers. The city accepted Sperry's bid for a System 80 Model 8 for \$380,000.

The second secon with fails and PC Sagastine JPMVS Computerwise and DCOST Computermination of the Computerwise and DCOST Computermination and PC Street COSTST Computerwise Hospita on PC Street COSTST Computerwise Hospita on PC Street NAVI Computerwise Egyptin. PC Street and Con-cession States STEEDING Computermination Services on and Services PC United States (Computerwise Junior PC United States (Computerwise Internation Internation Computerwise Internation International Computerwise International Computerwise International Computerwise Internation International Computerwise International Computerwise International Computerwise International Computer Interna

The letter was in respo

Harris Upham & Co. "Last time Burroughs offered \$65 and wasn't will-

Martin Marietta announces Ramis II enhancements edit, and DMS and DL/1 interfaces

vironments, the company said. Bob Roach, director of Ramis II Improves multiuser marketing, said tests of DMF Concur-rency showed it performed about 4.5 access, adds interface ons per second lightly load with 19 users.

Eddy Goldberg PRINCETON, N.J. — Martin Mari etta Data Systems last week an-nounced numerous enhancements, including data maintenance concur-

The user front end, called the Ra-mis II Menu-Based Architecture (RMBA), allows users to access Ramis rency and a menu-based user interdows and menus like those in Unis Martin Marietta's line of person face, to Ramis II, its fourth-generacomputer software products.

Ramis II Release 85.3 also sup language and applications lopment tool. Data Maintenance Facility

(DMF) Concurrency feature allows multiple users to simultaneously ac-cess shared Ramis II files and data

well as interfaces to IBM's DB2 and SQL/DB. Performance improvements to the Systems Building Executive, Formatted Screen Manager, Smart-Complete problems of a first point. Name, and water, a reality of the same for a first point of

symmes. 2
Special rejuests for reprints and permissions only should be addressed to Nancy M. Shan-non, OY Communication, Proc. 375 Cochsulare Roses (Ser. 917). Framingham, Mass. 01701-9171. Subcroptions call fell five (Sign 546-3472 or (15): 786-0386 in Premiphinan, Subcroption rates, 92,000 s copy. U.S. — 544 a year: Clarada, Central 4 Sci. Ameria. — 3110 a year: Exercise — 3165 a year. all other countries — 2245 a year is small service; Four



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can store more, or nantone it makes than instances, to summer how complex your queries get-ting firm that uses MODEL 204 for on-line real time sales tracking and analysis. Their 10-gigabyte database contains 4,000 fields, of which

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Jacore to resell Canaan DCS 5800 systems

Firm hopes to crack Fortune 1,000 through \$62 million VAR deal

TRUMBULL Conn - Formerly one of IBM's largest value added resellers, Jacore Systems Co. of Mariet-ta, Ga., has contracted to distribute

rpartmental systems made by IBM oftware-compatible manufacturer annuan Computer Corp. of Trumbull, According to Canaan officials, the ree-year reseller agreement is val d at \$62 million.

Jacore will resell Canaan's DCS 00, which Canaan announced in January as a competitor for the IBM 4361 and System/36 to departmental processing applications reportedly was one of IBM's largest value-added resellers in terms of sales, with \$60 million in revenue in 1985, much of it from sales of the System/36.

Jacore no longer offers the Sys-tem/36, but it does sell AT&T's 3B It also sells

line of minicomputers. licrovax II and PDP-II equipment rom Digital Equipment Corp

"It is one of the largest contracts

gned in our company's history. It is enificant in that Jacore is one of he largest IBM value-added resell-rs, with a large distribution network in place," according to Canaan Presi

hrough OEMs and value-added re-ellers. The DCS 5800 was designed software compatible with IBM's VM/CMS and to support up to 36 users working with IBM Personal

Computers and compatibles or a vari-ety of terminals. The DCS 5800 is iced at \$62,000 for a 12-user con-

in in Fortune 1,000 mart

Ritchie claimed that the Jantract will establish Canaan in the Fortune 1,000 marketplace. Jacore Chairman Jim Jacobson said of the deal, "We have decided to

pursue an agreement with Canaan that exceeds our total annual sales for last year because we believe that VM/CMS-compatible system provides a unique solution for rtmental computing in Fortune 1,000 companies. Jacore resells minicomp

peripherals through an agent and re-seller network. The value that Jacore adds will be systems support and applications software, according to Ca

Users await protocol fixes

to continue increasing the functiona-lity of the specifications without sac-

ing their stability. The two-day conf est official meeting of the combined MAP/TOP groups.
The likelihood of MAP and TOP

protocols continuing to change over the next year has delayed a number of planned MAP installations, company spokesmen said. According to sys-tems engineer Dan Miklovic, diversi fied manufacturer Weyerhaeuser Co opted to wait until some of the coofuon surrounding MAP had dissipated before taking the plunge. Weyer-haeuser will be accepting bids from vendors this year and plans to begin implementing a MAP network in

"We're planning to wait until 1987, when some of the technical issues like interoperability and net work management are solved," Miklovic said

Rather than postpone its project until the remaining MAP specificans have been finalized, the Ben laer Polytechnic Institute decided to proceed at a slow pace. This fall, the

School of Engineering will implement s MAP network connecting two IBM 4381s, a Digital Equipment Corp. VAX-11/780 acting as a shop floor controller and a Microvax II. The next phase, scheduled to begin in the ring of 1987, involves connecting other parts of the engineering scho on the MAP network

MAP is a set of factory net ocols based on the 802.4 token bus standard. TOP, networking protocois designed for the office, is based on the 802.3 Ethernet stan rd. Since MAP and TOP use many faces, users can link their business and factory systems by bridging the two types of networks

Nobel Mandili, a senior con at Northrop Corp., said that higher level MAP protocols are starting to solidify but that "theorizing is not ugh: you have to use them

He said many aerospace manufac-

turers, including Northrop, are currently testing on their manufacturing facilities the upper layers of MAP, such as the File Transfer Protocol for onnecting TOP and MAP networks, and PTAM.

Vic Lukaslk of Boeing Cor Services Co. reported that the TOP Technical Working Group Electro sing how two emerging documents after protocols, X-400 and Elec nic Document Interchange, may be proporated into TOP. The TOP up also announced its intent

ring the MAP/TOP Imo tion Panel, an attendee asked how

> Higher level MAP protocols are starting to solidify. but theorizing is not enough; you have to use them.

idors "could afford to aim at a moving target and keep up with changes in specifications." One vendor spokesman responde "We encourage prudent migration to new specifications" but added that standards organizations should "bal-

ance the trade-offs between adding the next bell and whistle and impact on the marketplace Network vendors voiced support for the idea of limiting protocol uptes to the communications inte

faces "so that users can update each layer without having to tear ap-At the conference, Retix

nounced a compiler that makes it eas-ier for users to implement additions and updates to existing MAP proto-cols such as PTAM, "which is out there, but still not a standard," Retix President Charles Fogg said. Linking MAP and TOP networks to

other communications standards --particularly the IBM Token-Ring --

was another major vendor and user concern at the conference I think there is a definite need to bring the office and factory togeth-er," said Stephanie Nader, a technical specialist at McDonnell Douglas

The company is interested in ementing MAP and TOP in an information system currently under de-velopment, which will link "any comiter to any computer," Nader said Several developments at the conrence promised the eventual inte-ration of MAP- and TOP-hased netorks with other networks:

The TOP Technical Working port 8023 on broadband coaxial prior reported that they are discussing how IBM Token-Ri

works can be linked to Ethernet 802.3 oetworks using TOP. "Initially the idea generated a lot of consternation because people thought IBM was controlling 802.5 too much, especial ly since they had not released some of their specification," said Lukasik Now, they seem as locked into the 802.5 standard as anyone else Touch Communications. demonstrated a prototype network that connected an IBM Token-Ring and an Ethernet 802.3 system.

The prototype linked IBM Person-Computer ATs on the Token-Ring, and Sun Microsystems, Inc. workstaions and PC ATs on an Ethernet, usng three vendors' impler the MAP protocol PTAM Touch Communications plans to release a commercial version of its oftware product later this year, said

Vice-President of R&D Brian McGann. The package will implement Layers 3 through 7 of MAP and TOF specifications for the OSI model on a . DEC and Data General Corp. unveiled plans for providing migration paths between their proprietary net-

orks and MAP. Also at the conference, Co Data Systems, Inc. announced the Series 4100, a family of bridges that inreconnect Concord's 10M bit/sec. coadband and 5M bit/sec. carrierand MAP networks

And Industrial Networking an-unced that its MAP/One local-area network had successfully completed testing for MAP 2.1 conformance at ivate testing company ITI. Senior writer Rosemany Ho stributed to this report

FCC move eases restrictions

North American Teleco ociation, a trade group for inde-dent telephone district pendent telephone distributors, criti-ciaed the FOC for eliminating the sub-sidiary rule and substituting what be called "phantom safeguards" against

The agency replaced the structur al separation rule with less restric-tive accounting and technical safethat are intended accomplish the same goal, which is to prevent the regional holding compa-nies from using their telephone com-panies to subsidize their new busi-

AT&T and the regional holding companies argued, and the PCC agreed, that the separate subsidiary prevented the companies from ng the kind of enhanced net work services that independent yen dors can offer. AT&T. for examp the separate subsidiary rule kept it from offering a voice store and-forward service

To prevent discrimination against enhanced-service providers the PCC ordered AT&T and the re gional holding companies to establish open network architectures by 1988 and to provide enhanced-service and to provide entitled-service competitors with equal sections called comparably efficient intercon-nection (CEI) — to the basic commuas oetwork

AT&T is pleased with the PCC de cision to eliminate structural separa-tion, a spokeswoman said, but is con-cerned that complex procedures for dishiog CEI will create long de lays before any new services can be offered. She said the CEI rule was de signed to prevent abuses by the local telephone "bottleneck" companies and should not have been applied to AT&T, which no longer has a monop

The Third Computer Inquiry is just one of the two regulatory doors we need to open," said a spokesman for Southwestern Bell Corp., one of the regional companies. "We'd like to see the second door — the restrictions of the divestiture consent de cree — opened, whether it's throug ngressional or judicial action."
The PCC decided not to tamper

with the fundamental regulatory framework established by the Second Computer Inquiry in 1980, under which basic telecommunications ser-vices are regulated and enhanced services are not. However, the commis-sion remained undecided on how to

classify protocol conversion, and de-ferred that decision to a later date.

The commissioners said they seek blic comments on whether to classify protocol conversion as an unreg saly protects contained and service, as it is now, or as a regulated basic service or to decide its status on a case-by-case ba-

The FCC's action last week was far less radical than the major regu-latory overhaul the agency originally proposed last year [CW, Aug. 5]. The agency had considered scrapping the basic and enhanced service catego-ries, instead regulating only those telecommunications services that are offered by dominant carriers and lack a competitive market. But over-whelming opposition from the industry and users killed that proposa

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IBM PC exec talks strategy

To me, that's different than a television set or a VCR.

That's particularly true if you ook at the large-account app tions of the products — tying the workstations closer together with intermediate and large process sharing data bases, being able to p vide applications that span the workstation and the processor in a way that doesn't require the ser to get involved in all

There are going to be peo-ple buying at the low end of the PC business today, tak-ing advantage of the low costs and prices that are available from us and from etitors. My expect is that, at the low end as well as in large accounts, there's a lot to be done in terms of interfaces, new applications new I/O devices, connectivity to data bases outside the home. These are going to be available orimarily through

new design points.

in my plants here.

CW: So what is your message to MIS shops now looking for cheap micros LOWE: The message is twofold. No. 1, I'm going to be price- and cost-competitive at the low end of my product line. And No. 2, I will maintain compatibility with my product line, with patibility with my product line, with the future devices that I'm going to provide. The wise shopper ought to look at, in addition to price, engoing maintenance costs and the ongoing application of his machine, and mple are that it is fully compatible to the

degree he needs it. I can match, in ma sts, anyone, either U.S. or abro We source the same components. I of fact the low labor costs overseas through automation, in investments

The product will become more complex - hopefully not to the end user, but in terms of the function that we're providing. It's pretty tough to provide that level of function without making an investment. And if you make an investment you've got to recover it, whether you're IBM or whether you're a

CW: You've also been stressing reli-

ability.

1.CME: We set out, when we first built the PC, to build a stand-alone machine for personal productivity or for the programming profess utilize at home. We set a set of objectives, which I now think have to be improved upon when you look at large accounts.

We keep setting very high, tough reliability goals which, frankly, are much more stringent than the ones we set for our product when we first started. We'll be setting objectives for the number of repair actions over a period of time that will be at least 10 times better on products we have under development than products we had under development two or three years ago

Also, as we're tying the prod ore tightly into intermediate and large processors in large-acco petworking situations, we are making sure to support that in software with error correction routines and network management capabilitie

CW: What are your most cor requests from large corporate users? LOWE: I would say connectivity of the PC, communications, networks nd data bases are very high on the mand statement.

The next thing is obviously being

able to support more than the 640K bytes on an operating system basis rather than through the techniques

that have supported it up to now



LOWE: We're investing in software a great deal. We're focused on it --expanding the addressability, pro viding a base for enhanced com capability, with multitasking and eventually multiuser capability

CW: Where is IBM focusing in wor

on PC-to-large-system connectivity? nenhiems of data support and office systems support across

our product line We've made some od strides And we've talked about

connerative processing. We're intent on providing a set of open inwhich will be on the PC as well as the in termediate

and jarge pro ressors that will offor sharing of information and of information

ing of re surces be

tween workstat es and the intermediate and large processors.
We have described before, and i

know I've got a big team in Aust working on, a set of service requesters on our products that will work well with host support, whether that's a 370 or System/36. So that you can utilize the services of an intermediate or large processor virtual file, virtual print and other urces - as if it were resident on the workstation. Or download from the processor the management of the

workstation interface. It's attempting to provide a shell of software so that the res ween the host and the PC can be

utilized by the end user without getting into the complexity of the hand offs between the workstation and

CW: How's the PC Convertible doing LOWE: It's sold much better than we expected. Our expectation now for 1986 is two to three times higher than what it was when we an nounced the product. As a new class of product - a small-footprint desk

top that can also travel - there's probably a lot more potential than the industry realized.
We don't have the Convertible in high-volume retail marketing yet.

We have gotten a great deal of de-mand from large accounts and a very high level of demand from educa The largest volume customers are in the insurance industry. There's also a good deal of interest from management consultants and fina

CW: What's been the response to the 314-in. disk drives LOWE: I was not concerne with the 314-



in. when we came out, and I'm not con corned with the 316-in now. It fits in ocket, it's

holds more in than the sta dard 5% and it's a good It has

helped us a great deal rith one of the most im portant| attriutes of the Convertible nd that's the

For a high e of the ma customers have ordered a deskto CRT as well. I think there's a gre

deal of advantage to having it as a deaktop and being able to carry it as CW: How does the 3270 Pers Compoter now fit with the rest of the PC line? OWE: Consistency with the 3270 family is very important to many of

our large customers.
The 3270-PC, when first intro duced, unfortunately took the apeach of taking the PC base and et of redesigning It into a produ-ther than adding a card or attributes into a PC base. Therefo when we came out with an XT and came out with an AT, it took us longer to announce the 3270-PC ver-

We're moving in the direction of tring those things together. I would think that eventually we'll build some MFI [main frame interac tive, the 3270 interface) attributes into the base of the PC

CW: Does the RT Personal Comput-er's architecture give an indication that future IBM desktop systems are ikely to standardize on the PC AT

LOWE: I wouldn't draw any strategic significance beyond the intent to give access to the applications and the at-tachments available on a PC.

CW: Is IBM planning signifi cant changes in selling and supporting micro software. as are the major indepen-dents like Lotus? dents like Lotus:

1 OWE: We get hit with many of those questions ourselves, with the facilities and func-

tions that we own I was expecting you to ask about site licensing. I think there's a lot of misunder-

standing about site licensing and the business of software. Somehow peoe seem to think that hardware is a siness and software is free. I'm investing more in software than I am in hardware. I focus on the business equation just as hard on software as I do on hardware. And when we have large customers who want high volumes of software, on a

cont-justified basis I provide th rolume discount, just like I do in I'm intent on getting a return on my investment in software, just as I am in hardware. In a lot of what I

read about site licensing, somehow

CW: What options is IBM examining CW: What options is IBM examining in copy protection?

LOWE: We've got copyright, we've got copy protection, and we work with customers on problems like downloading software, the number of the problems of the problems of the problems of the problems.

oowniosaing sortware, the number of people who use it and the numbe of licenses. Our corporate customer are very responsible in this regard. To provide a scheme that is more or less foolproof is a complex ques-tion. It's got to be something that much and is tamperpo quite a combination of requirements We're going to work on that, and if we develop something it will be in concert with our application provide

CW: How will the changes in distri-bution channels affect IBM? LOWE: I'm not concerned about the changes that I've seen over the last six to 12 months.

My plan is to use the distribution samels as we go through time wit sout the same mix of placement

that we have now.

We've taken a lot of steps, particularly in the last six months, to strengthen our relationship with or retailers. The decision not to expa

the retail chain greatly in numbers, the actions we've taken against gra en against gray marketing . . and the [price pro tion] package that was announce April 2 provide our dealers with

But record crowd views and PC 6300 Plus. many enhancements in 'mature' industry

Rosemary Hamilton ANAHEIM, Calif. — Despite a re ord-breaking crowd of more than 0,000 and a display of more than

1,000 products, the annual National Computer Graphics Conference last week lacked excitement because there were few major new products. "I've seem some improvements, but nothing much new," said Ja Picke, a programmer with Syner Corp., which does contract work for the National Aeronautics and Space Administration's Edwards Air Porce Base in Edwards, Calif. "It seems like

this year is for refinements. Rather than breaking new ground in graphics technology, most vendors introduced enhancements to existing products or used the conference, which was sponsored by the National Computer Graphics Association (NCGA), to display products that

were introduced earlier this year The show seemed to reflect a rent NCGA study that was published in Technical and Business Communi cations, Inc.'s "The S. Klein Newslet ter on Computer Graphics." It con-cluded that "the industry is at a technologically mature stage, with product development becoming more evolutionary, rather than revolution-ary in nature."

Ronald Ball, chairman of this year's conference, acknowledged that it was more subdued than those of other years. NCGA has been spon soring the conference since 1980.

first show brought in a mere 1,700 people, but each year the show has continued to flourish. So Ball said he expects it to continue that way,"as long as we're the place they can come to see whatever it is they want to see about grapb

ok of debuts not disa

A random survey of NCGA attend-one indicated that the lack of cutting-edge product debuts did not cause much disappointment. Many attend-one maid they use the graphics show to keep up with what is currently available on the market, rather than to learn about new fremiers.

a Williams on the marker, frames town to learn about see (remains.)

I to learn about see (remains.

e vendor's new micro offering. PC Productivity Systems, a Mo-onnell Douglas company, intro-sced Crossroads, a \$2,995 mechanias of other vendors with m

But the workstation vendours were not to be outdone by the micro com-panies; and some of the major play-ers, including Digital Equipment Corp., Sun Microsystems, Inc. and IBM, which showed its new workstation RT Personal Computer, were drawing large crowds at the show. Notably absent was Apollo Comput-Notably absent was Apollo Comput-er, Inc., which did not have its own booth, although its systems were being used in at least three software

in keeping with the evolutionary vs. revolutionary trend cited in the vs. revolutionary trend cited in the NCGA study, both IBM and Cadam, Inc., a maker of CAD/CAM nced they had ported main

end systems. IBM was running its CAEDS electrical design software, which has been available on such es as its 6080 Graphics System. on its RT PC

Cadam introduced Micro Cadam, a scaled-down version of its mainframe will sell for \$8,000 and is targeted at first-time users as well as Cadam's installed base, which now has the option of running CAD/CAM software

Among the OEM deals announced at the show was a \$30 million agree-ment between McDonnell Douglas and Tektroniz, Inc. McDonnell Doug las said it will incorporate five of the

Unigraphics product line.

Massachusetts Computer Corp.

(Masscomp) announced it would in-corporate the General Electric Co. 700 graphic processor into the high end of its workstation line. GE, which announced the pro-cessor last month, said Masscomp is the first company to sign on as an

Silicon Graphics, Inc., a maker of high-end graphics workstations, an-nounced that it will resell OEM hardware from MIPS Computer Systems. Inc. for its next generation of work-stations. Earlier this month, MIPS announced its proprietary reduced in-struction set computer hardware.

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Also supports programs

written in Cobol, PL/I

By Maura McEnancy SAN DIBGO — Software AG of North America, Inc. last week became the latest systems software vendor to support IBM's SQL, anncing to users the AdaSQL applition development tool.
AdaSQL allows IBM users running

Software AG's Adabas data base management system to translate an application's SQL commands into ands that can be read by Ada-Software AG officials acknowl-

plications use such commands and that the product is oriented toward the day when SQL is established as a standard and Adabas users want to

nolov it. Announced at the 15th Annual Usrs' Conference, AdaSQL also translates SQL commands emb bol and PL/I programs into access commands to be used with the Adaos data base management system. ture support for Fortran and the U.S. Department of Defense's Ada language is expected, the company

evolving standard of SQL because currently there is no standard," said

Software AG's Executive Vice-Presi-

dent Peter Page.
The AdaSQL product cannot translate all SQL commands to Adahas, according to Bruce Mancinelli, viceof development Software AG

Although the company has annced no release date, officials said Software AG is committed to interface Adahas to IRM's relational product, DB2, just as it has interfaced Adabas to IBM's VSAM and DL/1 file management systems, Mancinelli said Software AG is committed to bring

out before the end of the year a new version of Adabas "to selected ac-counts," but it will primarily be a

characteristics rather than one that works with DB2 and SQL, Mancinelli

said (see story page 19). Robert J. Becker, data base and data communications administrat for Foremost Insurance Co. in Grand Rapids, Mich., said the new version of Adabas will have improved performance through enhanced 1/O effi-

scy. 'Software AG has gone to the Execute Channel Program level for 1/0 communications, which has a lot less operating system overhead, instead of continuing to rely on BDAM,"

ciency

Users see AdaSQL as a replace-ment for what Software AG officials termed an "outdated" earlier prod uct, Adamint, which acted as an interface between Cobol applications and the Adabas DRMS. In addition to its ability to read about two thirds of all SQL statements, AdaSQL can be integrated with the Predict data dic tionary for cross-referencing canabil.

Conference attendee Larry Beard, data base administrator for Hilti, Inc., a construction fastener systems manufacturer in Tulsa, Okla,, now heavily uses Adamint to give his Co-bol and assembler human resources and order processing applications ac-cess to the Adabas DBMS. "AdaSQL will make a Cobol application look ore like an Adabas application.

AdaSQL for IBM's OS/MVS and DOS/VSE operating systems will be available in September. A version for Digital Equipment Corp.'s VAX/VMS machine will be available in the first quarter next year, company officials Prices range from \$10,000 to

Also announced by Software AG were the following: · Com-Pose, an on-line envir

ent manager for IBM MVS and DOS/ VSE users running CICS, TSO or CMS Com-Pose acts as the central commu-nications manager for Software AG's information center, development center office automation and communi-cations system products. Available in July, Com-Pose costs \$35,000 for DOS/VSE and \$45,000 for MVS

 Net-Pass, an application session manager that allows users to conduct. several logical sessions from an IBM 3270-type terminal. The product works on IBM mainframes running MVS/XA, OS/VS1 and DOS/VSE systems. Scheduled for release in Octo-ber, Net-Pass is priced from \$15,000 to \$25,000

 Adabas/Total Bridge, which al- Adabas/Total Bridge, which allows users of Cincom Systems, inc. s, Total DBMS to move file structures to Adabas while running existing appli-cations. Adabas, Total Bridge runs on IBM mainframes running DOS/VSE, MVS and OS/VSI. Available in July, the product ranges in price fro \$20,000 to \$30,000.

\$20,000 to \$30,000.

Natural/DL1, a facility that allows users of Software AG's Natural fourth-generation language to develop applications directed at DL/I file structures. Available in November, the product is priced from \$30,000 to \$40,000 for DOS/VSE, MVS and VS1



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Prime users group wards off vendors to celebrate 10th year

'We don't mind

being separate,

but we do want to be in the same

Third-party show steals some users' attention

By Donna Ralmondi RENO, Nev. — Several hundred users of Prime Computer, Inc. equip ment stathered last week to swap in formation at the 10th anniversary of their users group. But many were also eager to view a trade show the National Prime Users Group (NPUG)

tried to keep at a distance. About 900 members of NPUG, nctioned by Prime in 1984 as the official users group for Prime customers, were treated to a historical exhibit of Prime systems in keeping the meeting's theme, "Ten Years of Progress group of about 30 Prime-compatible third-party vendors held its own ex habition. Compatables '86, despite the

disdain of NPUG officials. Many Prime users readily agreed with NPUG's position that users can

obtain more valuable information other users than from vendors. looking at the direcating system is taking and a few other things, but mostly I'm here for educa tional fill-in and to get a sense of the rest of the Prime community," said attende

Michael Stein, office computer systems manager at the Environmental Protection Agency (EPA) in Wash gton, D.C. Often when new revisions of Primos are installed, "we at least tempo rarily lose a feature," he said. The

users group meeting is generally a good place to find other people who have had the same problems and solved them, he added Others, though, were willing to lis ten to the sales pitches of the thirdparty vendors. Ann Mihalovic, senior applications analyst and programmer

at American Greeting Card Corp., ned to use the resources of both NPIIG conference and the Compati bles '86 exposition American Greeting Card operates American Greeting Card operates two 9955s and a Prime 850 plus 10 other Prime systems. The company also uses third-party software. "I'm looking for a Fortran 77 compiler at the third-party show, and at NPUG I attended a Primos Rev. 19.4 class for programmers," she explained.

Another user who enjoyed the op nity to view both the same tioned Prime exhibits and the wares of the third-party vendors was Bruce Kerns of Alumax, Inc., an aluminum manufacturer in San Mateo, Calif. "I'm here to look at new Prime prod-ucts here and at compatibles from other vendors downstairs lat Compa-

tibles '86]," Kerns said.

Alumax has switched in the past ar from an IBM System/38, several IBM 370s in manufacturing units and some McDonnell Douglas Computer System Co. Microdata systems Prime machines. He runs the Pick Systems' Pick-based Prime Informao system on Prime systems that in-

Kerns said Prime Information is not really efficient but it has an effeetive end-user interface "I'm inter-

ested in meeting other people with it. and this meeting has been good for Prime Information cam a 25% increase in sales from 1984 to 1985 and a 60% growth rate the previous year

The product is a key in Prime's strat egy, according to Lou Volpe, group product and planning manager. put together seven sites to measure performance. The results of study are coming in now and will be turned into revisions for Prime Information and Primos during 1986,"

NPIIG's insistence on being an educational forum led to a decision to bar any kind of commercial ventures within the conference, said John Steffan, president of John Steffan Associates of Chicago, who served as the group's first president when it was formed a deca

This policy has led to friction between Prime and the thirdparty vendors. Prime sists that since the policy is to bar marketing and since Prime honors that policy by not selling hawking at the show. then other vendors should not have that right ei-Steffan

We don't mind being separate but we do want to be in the same building. We would appreciate it if NPUG would stop active opposition to us," said Mitch Modeleski, president of software developer Mitcheli riates in San Rafael, Calif., and one of organizers of the third-party show. "In the computer industry, the presence of peripheral products indi-cates a healthy host in a mature marketplace," Modeleski said. "Digital Equipment Corp. and Data General Corp. are Prime's competitors, not

"We feel that it is not our problem. We settled it years ago," said NPUG's President-Elect Patricia Craig, customer support manager at search computing center of the Uni-versity of New Hampshire. "We are opposed to a trade show environment. Users can get that in a numb of praces, but what we offer is educa tion and con

In a klekoff speech on activity at Prime since the last users group meeting, Mike Harries, Prime director of control systems, said Prime's strategy for the future will be to maximize use of each design effort through enhancements and mid-life

ickers to existing product - The company reaffirmed that it is committed to the Manufacturing Automation Protocol and also announced last week it is developing products to support the Technical Of fice Protocol specifications.

The only software annou made was that a revision of the Pri-mix operating system Rev. 2.2, which enhances some utilities, will be avail-

U.S. Commerce official blasts | Expert forecasts computers' impact Japanese industrial strategy

By Mitch Betts WASHINGTON, D.C. — A high-level official of the U.S. Department of Commerce last week blasted Japan's strategy for assisting its com puter and electronics industries as a "destructive, zero-sum game" that should be abandoned,

In a speech at a Washington, D.C., symposium, Bruce Merrifield said Japan's government grooms a targeted industry, protects its domes-tic market and subsidizes exports so that the industry minate the U.S. market with products that are priced below cost. He cited Japan's semiconductor industry as one beneficiary of this industrial strategy

"It's a destructive, zero-sum game. We need to abandon that and instead collaborate together to expand the

warned that Japan may ruin whole industries by Gooding markets with below cost products and may not be able to recoup its massive investment in industrial subsi-

tary for productivity, technology and innovation, spok at a symposium sponsored by the American Federation of Information Processing Societies, Inc. Panelists discussed what role the U.S. government should have in the soof the next 25 years.

The Commerce Depart-ment official said the U.S. government should support education, research and the conversion of research into better products by reducing the regulatory and financial ers to innovative re-

barriers to innovative re-search and development. Rep. Sherwood L. Boehlert (R-N.Y.), another panelist, said that even in a budget cutting climate, the U.S. government should continue to fund the computer and robotics research programs of the National Science Foundation and the National Bureau of Standards. "We shouldn't eliminate an investment in

Boehlert and Richard P Case, director of technical personnel development at M, also urged government d industry to provide more poort for education. particular, could stifle inno

Warns against becoming 'race of menu pickers'

David A. Ludium NEW ORLEANS — Expert

stems and other computer istive and social interaction in the next century, but history suggests such threats will be overcome, a noted forecaster told the annual conference of the Associa-tion for Systems Management last week

The conference opene with an address titled "Fe ture Computers and Their Impact," by Prederic G. Withington, a vice-president of Arthur D. Little, Inc., a Cambridge, Mass -based con-sulting firm known for developing systems and forecast-ing technology.

Withing the increasingly powerful computers of the future could cause people to lose mathematical skills and similar sources of mental discipline as well as self-reliance social interaction and individuality. Expert systems, in

vation, and people could be-come "a race of menu pick-"he said. But the human race has always when confronted with such

technological hacklash Withington said. "A lot of people were hurt; a lot of bilind alleys had to be backed out of," he said of earlier technological upheavals.

puters of the fu-ture could cause people to l

But I feel sure information rms of the 21st century will be for the good and not oppress anybody for very

Iong."
The consultant forecast evolutionary, rather than revolutionary, developments in hardware and software technology through the early 21st century. He predicted to power computers, voice recognition systems will still rely on the ability to match patterns and expert systems will remain limited to "com plex but explicit" solutions predicted greater changes in some oth-er areas. He foresees flat col-or displays with photo-quali-

ty resolution, printers to match them and "personal-ized software," such as electronic mail programmed to route publications arriving at a company to individuals according to their interests. The consultant said he es major strides in com nications through "wiring the planet" for two existing chnologies — fiber optics

and cellular radio. The chief obstacle to that is the cost, be Among the potential results of such developm might be a pocket-size porta ble computer that will municate, inform, advise and Ington said. Such a "personal servant" might, for example warn its owner not to drive after drinking, saying to him

I know you just had four

drinks because I paid for them, and if you try to drive,

I'll call the police

Signer or the second



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NEWS



- IBM reportedly is trying to persuade UK users not to buy clones of its highly successful Personal Computer Costomers say the giant is er. Customers say the giant is hinting at locking them out of future compatibility if they don't buy exclusively from Big Blue. Some users believe what

Some users believe what they are being told by IBM, while others say it's just a scare tactic. Suppliers, how-ever, are already feeling the effect. PCML, a UK firm that sells software and add-on products for the PC, says the feeling in the market has d away from third par-

personal recently told the European Economic (ECC) that Commission (ECC) that IBM's clampdown on clone suppliers could result in inmicrocomputer prices. In a letter to the EEC detailing its complaint against IBM, Compulink said users were concerned over possible market abuses that may have an impact on the fair competition laws estab-lished in the EEC's charter. the Treaty of Rome.

Specifically, the letter complains that IBM's recent moves against UK clone suppliers have sought to prevent those suppliers from doing business by charging IBM PC conveight infrings

SYDNEY, Australian

— The Australian
High Court recently ruled that a computer object code was not protected by Australian copyright law pri or to Copyright Act amend-CORRECTIONS

The cost to upgrade 500 copies of Lotus Development Corp.'s 1-2-3 spreadsheet Corp.'s 1-2-3 spread [CW, Dec. 23] is \$62,500 Jack Shevillo is executive

vice-president of CMI Corp. ICW, March 24) in Bloomfield Hills, Mich Product information about ata General Corp.'s DG

7500 and 7700 wor is available from DG, 6300 S. Syracuse Way, Englewood, Colo. 80111. The Unix operating system is available for both models [CW, March 10]. Sperry Corp.'s 1100 series mainframes running the SX operating system were omit-ted from Executive Report

chart on. Unix implementa tions [CW, Feb. 3]. The Multsess multiple ses sion manager [CW, Nov. 18] is marketed by Westinghouse Electric Corp., Manag Systems Software

ts that were made June 15, 1984 On May 6, the High Court delivered its 3-to-2 decision in the case of Computer Edge

Pty. Ltd. vs. Apple Cor , inc. The Court heard an appe by Computer Edge against a ruling by the Federal Court that the Wombat computer, which is imported from Tai-wan, infringed on the copy-right of Apple Computer Australia Pty. Ltd., a dispute that arose vs. 1942.

that arose in 1983.

ed by the increasing value of the Japa nese yen against the U.S. dol-lar. Japan's February com-

output almost leveled off at \$679 million, up just 0.2% from a year ago, the latest nthly survey by the Comnications Indu stries Assomunications industries Asso-ciation of Japan (CIAJ) said. Also responsible for the February slump was a heavy

drop - by 14.2% - in ex-ports to the U.S. caused by

the wake of the bilateral trade discord between the two countries, CIAJ said.

Under re from m ries now developing ems, the Intions Satellite Organ (Intelsat) last week pledged

"every effort"

keep up with the develop-ment of Integrated Services

Digital Networks.
Intelsat is a Washington,
D.C.-based nonprofit organization composed of 110 mem-ber countries. It owns and rates a worldwide satel

lite telecommunications sys-tem also used for domestic ications by 26 mem-TOKYO - Fuele by solid sales of high-end, 16-bit machines, Japanese persons computer shipments in 1985



rose 18% from a year ago, to \$3.47 billion, according to a recent Japan Electronic In-dustry Development Associa-tion (JEIDA) report. But by units, the shipments grew a sluggish 6% to 1.98 million

Broken down by market veries were valued at \$2.34 billion, up 10%; by units, domestic shipments totaled 1.19 million. This amount was down 1% from the previous year. Overseas shipments reportedly

nted to \$1.13 billion, up 17% from the year before; by units ship to 796,000, up 40%, JEIDA

TOKYO - N Securities Co. has the first e firm to an ice plans to use IBM's Token-Ring network. Nomura said it will use the system as rt of its \$425 million pro

ect to upgrade domestic and

brokerage

ra. Jan

ties leader with 1985 operat-ing revenues of \$3.3 billion, plans to install a Hitachi, local-area work system in its Tokyo uarters and in each of

TOKYO - After a lengthy feasibility study, Nippon Telegraph and Telephone Corp., NEC Corp., Hitachi Ltd. and graph and Fujitsu Ltd. have establish

their former joint research project as a \$25 million ser-

The newly formed com ny, called Internet Co., is also joined by The Japan Econom-ic Journal, and will offer general-purpose value-added network services beginning in October, a spokesman said.

Epson America, Inc. plans to unveil a new laps

ing to the company's Austri-an distributor. The machine will offer more computing power than the Epson PX-8. popularly known in the U.S.

as the Geneva model the source said. It is not yet known whether the new laptop will be IBM
Personal Computer-compatible. A new inkjet printer will
also be released before the end of the summer, which reportedly will be as easy to

CTA bribery case snares Pa. officials

operate as a matrix printer.

the source added.

y Stanley Cibson HARRISBURG, Pa. — In a bribery case relating to a con-tract for computer services, a federal grand jury last week two Pennsylvania political figures. The indict-ment charges that R Budd Dwyer, state treasurer, and Robert B. Asher, former Re publican committee chairman, agreed to accept a \$300,000 bribe from a Cali-

fornia computer services company in exchange for a \$6 million government con The indictments came as part of an ongoing investiga tion in what has become known in Pennsylvania as the CTA case, named after Computer Technology Associates, Inc. (CTA), the comp

ny that allegedly offered the The company's owner, John Torquato, is serving a four-year sentence in Cali-fornia, relating to charges brought previously in the in

vestigation. CTA is no longer in business The contract was for ser vices in checking computer records of Social Security

overpayments from public school employees CTA was awarded the job on a no-bid basis. Another firm later sub mitted a bid for \$1.3 million to perform the same work.

The indictment claimed the two men agreed to accept the money as a campaign

contribution from CTA.

According to a reporter for the Harrisburg Patriot, CTA was headquartered in Torquato's California home.

The reporter said authorities found records of the planned bribe payments on computer disks owned by

A apokesman for Dwyer said the treasurer firmly maintains that he is innocent and is "looking forward to confronting his accusers in a legal setting

If convicted, Dwyer and Asher each face up to 60 years in iail and \$36,000 in



EDITORIAL

Chernobyl's reminder

Westerners frequently forget the distinc-tion between purely computer technology, and information technology, presuming all along that they are one and the same. The So-vice Union's leaders surely know the differ-ence, and we should never forget it. Chernoby has reminded us of that.

byl has reminded us of that. Information processing is but one by-prod-uct of computer technology, of course, but it is the focal application in most Western na-tions. These data-driven societies — espe-cially the U.S., Burope and Japan — have seized on the free flow of information as a tool with which to create new industries, new rkets and new wealth.

The Soviet Union is reported to be one of the world's largest consumers of data pro-cessing equipment, with the U.S. and Japan. Certainly the success of the Soviet space pro-gram is testimony to the USSR's command of computer technology.

But the Soviet Union of today remains as much the antithesis of an information-based society as it was in the darkest days of Josef Stalin Due to dread and fear born of centuries of invasion and conquest, the Soviet Union is a ruthlessly closed society where to the general public the notion of "informa-tion" carries the sinister baggage of spics, informants and purges.

Perhaps the best way to combat the Red menace would be to back up truckloads of mi-crocomputers and modems to the USSR bor-ders and let the information revolution take its natural course. Surely if the Soviet people had an MCI Mail or Compuserve, the nation—and the world—would have known of the Chernobyl disaster in a matter of hours, not

The free flow of information between free peoples is a goal worth aspiring to and pro-tecting. It is one of the many things that sepa-West from East and one of the most vitally important. The U.S. computer community should never cease working to shape and extend the ideal of an information

Notes & observations

A news story in the May 12 Computer-norld, notes that Wang Laboratories, Inc. is taking its lumps for presuming to charge for service that its users deem inadequate even when it's free. Meanwhile, the Volvo automobile people have attracted considerable atten-tion with a new policy providing a range of otherwise pricey items associated with on-the-road breakdowns free of charge. When it comes to good customer relations, it's what you do for them that counts, not what you do

According to the most recent U.S. Department of Labor statistics, seven of the nation's 10 fastest growing occupations are in com-puter-related fields. They are, in descending order of growth projected through 1995, computer programmers, computer systems analysts and data processors, data processing equipment repairers, electrical and electronics engineers, electrical and electronics technics; nicians, computer operators and operators of peripheral electronic data processing equipnt. So much for that computer slump



LETTERS TO THE EDITOR

PDN: Taxi convenience, bus capacity

As a provider of X.25 and packet assembler/dismbler software worldwide, I feel compelled to clear up some misinformation in Daniel Minoli's "Packet-switch perspective" ICW, March 311, He states that packets typically have a minimum length of 128, 256 or 512 bytes and are not effiuse they are like a bus that must wait to be full before it departs. CCITT recommendations and public data network (PDN) implementations have maximum packet sizes but not munit es. Packet switching has the convenience of a taxicab with the capacity of a bus. So this probl with the packet switching industry is nonexistent.

Later, Minoli compares the cost of transferring

a 300K-byte file across the country on dial-up lines, with a 10K bit/sec, modern, with Tymnet. He s not say that when you pay for packet-switch ing service, you pay for guaranteed data integrity. What condition will a file be in when it arrives on voice-grade lines at 10K bit/sec? If the modem is error correcting or if an asynchronous block proto-col is used, then all error correction is at the user's expense in hardware, software and cor Even with 10K bit/sec. modems, a 10K throughput rate can never be achieved with data integrity because of moderns falling back to a lower speed as sion. When you add all the costs, paci witching via PDNs is competit

Understanding data sublanguag

I recently read your interview with Ted Codd on fourth-generation languages, "Codd stresses in-portance of shared data and widstiguages" (EV. Peb. 24), and was upset with what I read. No wester there's so much confusion shout fourth-generation languages. I'd like to set the record straight. Codd states, "I don't know of any fourth-generation language that includes a relational data with-language. This is not true, Outpel Cown. A furthermore." This is not true, Outpel Cown. A furthermore. This is not true. Oracle Corp.'s Ora

language... This is not true. Oracle Corp. a Ora-cle and Ingres, Systems' Ingres, two fourth-generation language products, include the relational dals sublanguage, SQL. The next release of Cullinet Software, Inc.'s product, IDMS/R, will contain an embedded SQL capability. Furthermore,

powerful than SQL Another inaccuracy in the interview relates to

Another inaccuracy in the interview relates to Codd's statements about fourth-generation lan-guage requiring record-at-s-time data base access and writing program loops. The first fourth-gener-ation language, Martin Marietta Data Systems 'Ra-mis, was developed so that access to data could be performed at a higher level. Ramis introduced con-cepts like Sum and Count that automatically access multiple data base records without any navi-gation or record-level commands like Open. Read

Finally, my list of benefits provided by fourth-generation languages includes: increased produc-tivity, access to data by non-DP professionals, increased system acceptance through application prototyping approaches and less time to train new

I share Codd's feeling that screen painters are eat. However, I feel this assessment of fourth-eneration languages does not do justice to a cate-ory of software tools that have revolutionized the plication development process in corporate

Jeff Bernkhap Fourgen Corp. New York, N.Y.

T1 pricing forces network redesign

TI pricing forces activors redessign in read libe is clerify omessity parameters are attributed by the clerify omessity parameters. It is not because the clerification in an Customer Convented Branch Convented

short-term efforts to impi

VIEWPOINT

When 186,000 miles per second just isn't fast enough

et's talk about speed, you and I. The word has an incredible d of sound. Speed demon. The speed of light. Speed freak. Process-ing speed. Speed limit. Speeding tick-All of these are fitting terms deding on a given situat

For instance, I think it only fitting that I got a speeding ticket on the same day that the new Lamborghini Countach was featured in a nat car magazine. I wasn't driving a Lamborghini, but I'd probably feel better More fitting is that Beaverton,

Ore.-based Floating Point Systems, Inc.'s announcement last month of the world's fastest computer follows hot on the heels of the comm tive anniversary of the world's first computer, the ENIAC.

Limited only by the speed of light

Whereas the speed of the ENIAC relied substantially on human ability to adjust knobs and respond to blink-ing lights (the kind of stuff still used to represent computers in the mov-

Nescouist writes and contra artificial intelligence and other ad-vanced high-technology topics from his office in Scottsdale, Ariz.

T/40000 is limited to some extent by the speed of light. The company claims that this product has an arithmetic speed of 262G floating-point operations per second (FLOPS).

If this number doesn't mean anying to you, don't feel For those of us

of data terminals and numbers of this type are still totally alien. Roughly stated, howtraniates to 262 bill

floating-point opera-tions per second. Yes, er second. Floating ont achieves this raile! processing, multiprocessing

instruction uting technology and hyper which I will discuss here becau they each deserve their own individual columns simply to define them.

The point is that computing speed oprehensible magnitude is beginning to make its way to a computer near you. For those who pine away in personal fantasies of an individually assigned Cray, similar performance levels are becoming available

reasons is that's one hell of a diswho toll in the world

By HARVEY P. NEWQUIST

travel. Remember, the speed of light is only 186,000 miles per sec Another example is that the newest super-

will reside in the slowness of the speed of light. For instance, the Plonting Point product has a cable re-striction of 40 feet. Why? One of the

aputers are continually shrunk in size to improve a processing speed that is slowed ce between its co tors. So, why not just eliminate all

tance for you to ask

something moving at the speed of light to

the connectors by putting most of the processors on a single chip or wafer! Two years ago a very well-funded company known as Trilogy Ltd. tried that using a custom-designed silicon wafer. The heat generated from passricity through this envir ment left Trilogy with the equivalent of a pool of liquid glass and many millions of dollars that disappeared speed becomes relative to the situa

We are fast approaching a period when there is no such time as realtime in the cases cited above, realworld of computing, real-time would be a dream come true after hours, outes and even seconds of waiting for our machines to grind out their reports and calculations.

In regard to calculations, some recent discoveries from the Bochester Institute of Technology even change the way calculations are done in order to save time. Using a non-Euclid ean geometry they have developed, a group of RIT researchers solved 99 integer equations that had 132 up

knowns and arrived at a binary solution in 12 hours. That sounds fairly But it has been estimated that sim ple brute force computer techniques attempting to solve the same equa-tions would take several million centuries. Compare this concept with the ides of billions of floating-point operations per second and see if that

esn't screw up your sense of rea So next time someone tells you to speed it np. or you don't think you have enough processor speed in your system, or perhaps your car is speeding along at a measly 61 miles per hour, remember - it's all very rela-

Building systems projects that will get off the ground

I ollowing college graduation I was hired by a custom programming shop headed by a tired general. After I worked for bout two months on a poorly detected the life fast over sealing. about two months on a poorly de-fined and ill-fated programming pro-ject, the general called me into his of-fice and told me about a development project he had worked on while a member of the Joint Chiefs of Staff.

Not sure what specifications a new plane should have, the Pentagon nmissioned a development team to ermine the plane's requirementa ion the plane, and arrange to have

To determine the Armed Forces' sign requirements, the team talked or Army, Navy and Air For

The Army officers ins The Army officers insured to we plane carry at a minimum 500 idders, 10 tanks and 25 jeeps. The mor Navy officers felt the new ane should take off and land on the nallest of its aircraft carriers and avel long distances without mid-air and the state of the control of the property of the control of the control of the control of the officers of officer l long distances without mio-ar ling. The Air Force officers ed a plane that would fly at high

ton dealers would not the

Having defined their require-ments, the team began designing the new plane. They did not want to ruf-

Peat, Marwick, Mitchell & Co.'s

fie any of the senior officers' feathers, so they incorporated all of the to their design. The resulting de sign was truly a plane designed by committee and one, the general conded, that would never take off. While there are many critical fac-tors in successful systems develop-ment, the general's story focuses on

in a wider variety of computers

As prices start getting driven

two: Clear, res the right peop

pe is small, reistic and sim-e. I have clients who bave a "Keep

le" logo on the bottom of their o stationery. Yet, when it comes stems development, these clients upt to build huge systems with tless screens, far too many opand supposedly tremen dity, and then they wo why the systems never set off ti

prevent these overly com-ns from finding their way To free years from finding their way into design and development, use a building block approach. Develop small, simple modules that have clearly defined interfaces and that can be easy combined. By developing these discrete modules, project development and accomplish the following:

rs can accomplish the following: Reduce the risk of something go ing wrong.

Enhance the system's flexibility and simplicity.

· Ensure the system's successful Decrease the system's complex-The simplest solution may often so be the most elegant. The best ex-

ample of this approach is the flood of soreadsheets that has hit the market. otus Development Corp.'s 1-2-3 and most spreadshert READER'S PLATFORM packages use the building block approach in that

they clear and easy-to-use discrete fea tures that can be combined to provide e complex functionality Of con rse, ideally, every pro ould be staffed with a small numer of highly experienced senior pro-rammers. Realistically, that rarely ens. However, there are ways to ake sure the project is staffed prop by by providing senior people is

provide

• Hardware: Having a pers has developed projects on this piece of hardware in the past allows the am to determine, in advance, what unctions the machine performs well nd what functions should be avoid-

 Application: Having individuals on the project that are familiar with those specific problem areas can eliminate a great deal of aggravation further down the road and help to enre that the project does indeed fly.

Business environment: By staffcan expect a more solid product when the system is completed

It is in these last two areas, and cation and business environment familiarity, that the value of user involvement becomes critical While the systems development staff may believe they understand the user's environment, the systems they turn out often don't reflect that familiar ity. What is needed is full-time user involvement in design sessions, program walk-throughs and even capital

discussions with the project team. ration is the key

The key word, however, is cooperstion. All too often, unfortunately, users and the systems development team antagonize one another by not considering the technical and opera-tional feasibility of the things they

Users who are active participants can develop a sense of system ownership and an understanding of the nstraints under which MIS must ork. Simultaneously, MIS can gain a

feel for the problems the users are Pinally, as I think back on the time I have spent observing and being in-volved in various clients' systems de-

opment projects, I believe systems under development are best destined to take off when they are simple, clearly defined, closely monitored by users and built in small units.

ilding systems that users und stand and can work with is what this stry is all about. Make sure your tem gets off the ground.

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il, step into our showroom and kick a few tires! We'll how you two programs that are the Ferrari and amborghini of VM programs.

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Now we've carried that bright idea over into VM dumprestores and sort programs. And the results are still wow! Compared to any other backup or sort program clooging the nation's VM thruways today, SYBACK and SyncSort CMS will save you up to:

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- 55% in TTime:

• 75% in SIOs.

So who needs all that speed? You do. If you want to optimize your VM operations, stay out of needless DP traffic jams, and make the boss happy with your throughput. Here's what happened to one large government agency: Their

backup operations used to require a full 24 hours to complete. Then they installed SYBACK, Now their backup takes - are you ready? - one-half hour!

(2) EASY HANDLING: SYBACK and SyncSort CMS are among the most flexible, user-friendly programs ever produced by anybody anywhere. That's one reason programmers love 'em. And where does it say that backup and sort operations have to be hard to be good?

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If you'd like to put a little high technology in your VM tank, give us a call. We might even take your used VM dump-restore or eart arragram as a trade-inf

SOFTWARE & SERVICES



4GLs drawing bead on PCs

ourth-generation languages (4GL) are on the move: Versions for the personal computer are becoming available, and in time, we will

see hybrid languages that include the best of a fourth-generation language The advantage of these languages is well known. They typically allow pro-grammers to use English-style state-

ments to produce in one line the equivalent of four or more lines of a third-generation language.

The advantage of a PC version of the language is also obvious: A mainframe is too expensive to tie down with a

coding project. Therefore, it's better to develop software off-line on a microcomputer and upload the finished prod-uct to run on the mainframe host. The early wave of fourth-generation innguages for PCs includes PC/Focus from Information Builders, Inc., PC-Info from Henco Software, Inc. and the personal computer version of Applied Data Research, Inc.'s (ADR) Ideal, which is scheduled to be introduced this year. Those are only the early

arrivals. According to software indu try analyst Damian Rinaldi of Interna tional Data Corp., based in Framing-ham, Mass., "More andmore of the traditional 4GL tools are making their way to the PC environm

way to the rt en vironment."
While this development surely marks
another small victory in the battle of
the fourth-generation languages
against the third-generation languages
they seek to replace, it should not be

Warner is editor of the Computer-world News Service

See 401, page 24

Delay of Version 5 release disturbs some Adabas users

By Maura McEnaney
SAN DIEGO — Users group attendees, anticipating a new release of Software AG of North Americs, Inc.'s Adabas data base management system, instead got a preview of the product and a promise of a July con-

of the product and a promise of a July con-trolled-release date.

While Adabas Version 5 promises I/O performance improvements of up to 42% in some cases over the 4-year-old Version 4, some of the more than 1,500 attendees

at the 15th Annual Users Conference here were disappointed that Version 5 was a

no-show.

"Last year they said by this time the new release would be out, and we'd all be discussing ways to improve it," said Gary Underhill, data base analyst at Mark Producing in Houston.

"People are pretty hot," said Ira Do brow, president of Data Ideas, an Austin, Texas, consulting firm. According to Do-

SOFTWARE NOTES

TI unveils Prolog for AI workstation

Texas Instruments, Inc. of Austin, Texas, introduced TI Frolog for use on the TI Explorer artificial intelligence workstation. The TI version of Prolog is a upperset of Digital Equipment Corp.'s Decsystem-10 Prolog, a popular implementation of the symbolic processing language. It combines features of Prolog and Lisp.

Cray Research, Inc. is making a version of AT&T's Unix System V available to run on its Cray-2, Cray X-MP and Cray-1 supercomputers. Called Unicos. it will be a foundation operating system for all Cray hardware products. The

ters on features promised in Adabas Veraion 4 that are now slated for Version 5 Among those functions is the Read Descending function that would let files be read in inverted order.

Bruce Mancinelli, vice-president for de velopment, said the delay has been caused by a decision to "add capability beyond what we had originally planned" and to ensure the product worked as expected upon release

There is nothing specific that has delayed the release, it's just that the develop-ment process took longer," said Software AG President and Chief Executive Officer Stuart Miller. "In retrospect, we probably could have been less specific about the re-lease date," he said.

Many users, while anxious for the per-rmance enhancements of the new data

Software speeds war games task

By Eddy Goldberg LIVERMORE, Calif. — Developing com-

sterized war games for the U.S. Army is a job that requires sophisticated software engineering tools.

engineering tools.

When a team of computer scientists at Lawrence Livermore National Laborato-ry's Conflict Simulation Center faced the task of developing a multiuser, interactive graphics program for training officers in strategic operations and military tactics, they looked for a tool that would automate they looked for a tool that would automate

ystems analysis and design.

Computer scientist Sara M. Hilbert, syssigner for the project, said the team wanted a tool that was easy to use and offered consistency checking. Comprehen-sive data-flow diagram support and strong unications capabilities also ranked See SOFTWARE page 22

NEW THIS

 IBM adds applications to its MAPICS II software

 Telesoft ports its Telegen 2 Ada compiler to DEC VAX sys-

For more on these and other new products, see pp. 83-106.

INSTANT ANALYSIS "In spite of the

problems being experienced by high-visibility companies like Cullinet, many of the computer ser-

vices companies continue to show solid earnings gains....Examples are Automatic Data Processing and Dun &

Bradstreet." & Sons, In

Brush Up

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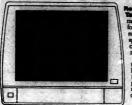


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analyses. Sales reps can track leads and retrieve customer information from a variety of data bases. Your clerical staff can produce stacks of "personalized" letters. The menus make it easy...and on-line help is always available. But ease of use shouldn't be confused with lack of power. We eliminated that trade-off by giving programm sed to handle computer performance evaluation. matrix programming.

and applications development.

SYSTEM



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management and much more.
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The SAS System runs on IRM \$7000000450cc and compatible machines under OR, 790, CMS, DONNE, SSX, and ECC?, on Digital Systemson Corp. VAX** 90000 and 117000 certs under Wally on Prime Compate, the Prime Sile series Sile and Corp. VAX** on Prime Compate, the Prime Sile series Sile and ACONVA.

on IRM ATTOTO and XTOTO and Compatible Sile and Compatible Sile and Corp. VAX** while PO COR. Not all products use PCSAS for all Compatible Sile and Corp. VAX.**







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Software speeds war games task

From page 19

s so ever to unde

high. After considering various mi-cro- and minicomputer-based solu-tions, the project team agreed to beta-test Teamwork/SA, a workstation-based environment for systems analysis from Cadre Technologies,

Inc. of Providence, R.I. The software retails for \$8,900 Apollo Computer, Inc. workstations.
The three-year project focuses on developing an analysis capability for the corps level, simulating not only the physical events and weapons ef-fects of ground combat with close air

Demand for corporate information services is expected to grow dramatically over the next decade. With many data centers already no

A hours a day, managing this constantly increasing workload may become a begge problem than doing the work losel. But a large part of that challenge can now be met by simply moving

up to med-time job scheduling, with ADCS, Automated Data Center software Designed for an AVS or MYSSEA operating system, ADCS software automatically builds and submite schedules, John are automatically released.

x. This current and historical job status information is imme ie to the operator, acheduler or data cerear manager iss

or conditions are met. With ADC2 software, all jobs are

ience, scheduling control can be dec different user departments and evan remote sites to run multiple les on the spine review concurrents Scheduling with ADCI solly

support but also including mechanisms to reflect decision and plan-ning considerations. "The program is ning considerations. The program is extremely complex because a lot of functions have to be integrated and coordinated together," Hilbert said.

tions involve close combat aviation, fire support, intelligence, electronic warfare, combat service poort, communications and air de se over highly detailed digitized terrain. Trees, rivers and hills are nainted on high-resolution screens. and players at terminals can soom in ed out quickly between an entire battlefield and a 10-meter square on that battlefield showing one tank

The target hardware to run the

ctre the day it's installed. ADC2 sufferant helps you solve coday's problems today. And positions

you to manage the increasing data center workloads of tomorrow For additional information on ADC2 software, consuct Shown Hickards todar, at 1883 Lawrence Expressives, Series Clean, CA 99093-3595;

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to the way data nows through it, showing how that system will actual-ly perform. The systems analysts can use it to coordinate the many port-simulation software is a Distital Equipment Corp. VAX 8800. tions of the programs involved in the

research associates and manageme

and concise communication is essen

A structured analysis tool such as Teamwork/SA is a means for the var-ious parties on the team to document

the function of the system according

to the way data flows through it

Setting up ADC2 software is surprisingly simple, too it takes only part of

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Though Hilbert said no decision has been made, the odds are high that the completed war games will run on a distributed VAX architecture. erall system to ensure it will work d when the development is

Hilbert explained that when ana-, Since the development team con-sists of computer scientists, military lysts meet with users to define system requirements, graphical representations can be quickly understood by both sides and instantly changed from different backgrounds clear during the specification process. tial, especially in the specification and design stages. "A lot of what helps to clarify the purpose of the program from the start, reducing regoes into a system during the specifi-cation period determines how fruit-ful it will be," Hilbert said. design requirements and speeding the completion of the system.

One of the most observable bene-fits of using Teamwork/SA involves the creation of data-flow diagrams Hilbert said the product automates the generation of data-flow dis-grams, freeing the analysts from tedious manual redrawing with pencils and templates. The graphics screen becomes the equivalent of an elec-tronic scratchpad, automatically recording ideas as program developer and systems analysts explore and re-structure software. This allows them to focus on the actual system engineering. Programs are retained in a data base and can be used later to

modify and maintain code.

Gains are achieved in both productivity and program quality, she said, because work not only goes faster, but changes are more thorough and made at deeper levels. "Integrated access from data-flow diagrams to the data dictionary makes model de velopment, revision and review sim-pler," Hilbert said. The data dictio-nary can be accessed at any time

from any part of the program ert said that syntax and con sistency checking are critical to the project, since hundreds of model ele-ments are entered. With automated checking, problems are more quickly located and fixed. She added that even with a time-consuming manual check, the team never could find all

function can

The user interface employs a mouse-and-icon approach, eliminat-ing time-consuming keyboard input and allowing a faster, more intuitive proach to development, Hilbert id. Pull-down windows and multisauc. rull-down windows and multi-windowing capabilities afford quick access to several parts of the project model at any time. "The ability to see four or five drawings of parts of a system simultaneously belgs in see-ing their interrelationships," Hilbert

ing their incere-observed. Hilbert said a standard vocabu-lary, achieved more easily through icons, makes uniformity of defini-tions, makes uniformity of definitions possible, speeds training and re-duces misunderstandings between developers. "The graphic orientation clarifies communication by minir ing the use of English," she said. A common data base allows aut rized users multiple, simultane

access to any part of the program, fa-cilitating team management and speeding program development. Com-

speeding program development. Com munication problems during a soft-ware development project can signif-icantly delay its completion. Hilbert said the use of structured analysis in the early stages of a pro-ject yields downstream savings. "Im-proved communication, combined

Cullinet produces...

InformationWEEK



April 14, 1966 — Information WEEK — Page & e

Real Access.

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The leader in information services and technology

4GLs drawing bead on PCs

taken to mean that the fourth-ger ation languages' war with Cobol is near an end. The arrival of PC-base urth-generation languages still leaves unanswered the languages' need for portability, greater speed and usefulness outside the world of

It is in these areas that the next

It is in these areas that the next development in fourth-generation languages will take place. The fourth-generation language is popular for economic reasons. Soft-ware development costs, which are labor costs, now often eclipse the expense of a system is hardware. The

solution, of course, has been to con vert to fourth-generation languages for neutram development. The language in effect relies on relatively ap hardware power to overcome the relatively expensive cost of Co-bol programmers. With a fourth-gen-eration language, a savvy end user can do mainframe programming.

The programs that result, howev-er, have grave limitations. According to Paul Tinnarello, manager of data services programming at A.M. Best Co. in Oldwick, N.J., fourth-gene

tion languages "lack the speed for use in high-volume" systems. Fourth-generation languages allack good debugging tools and portability, Tinnirello said. Perhaps most important, they do not address the fact that the user often already has a fleet of Cobol programs, all of which must be maintained and updated

Because of these reasons, "people aren't going to flush their Cobol systems down the drain" in deference to fourth-generation languages, Tinnireilo observed. At least, not yet. There is on the horizon a new

breed of fourth-generation language that combines the best of Cobol with the best of the language - and with a dose of artificial intelligence add for ease of use. While fourth-genera tion language users have for som time been adding patches of Cobol to their programs wherever they want speed or prester conhistication these new languages will not need patching. They will simply be faster products. Such products will be "a

likely extension of existing AGI products," said IDC's Rinaldi. When those products arrive, will have the best of both worlds for a change

Adabas delay irks some users

From page 19

base management system, admitted they were willing to walt until the product was rea "I know that Software AG doesn't move quickly on its releases, but when the product comes out, it's usu-ally very sound," said Howard Robin-son, of PVA-EPVA, Inc. in Wilton,

A fund-raising organization for paralyzed veterans, PVA-EPVA uses an IBM 4381 and a 4341 for produ ing its mailing lists and donor re-cords. Because the company runs 100,000 transactions a day against several million records, "our biggest problem is performance," he said. At the Utah Department of Employment Security, employment records are now stored on VSAM files. With the added capabilities and in-creased performance of Adabas Re-lease 5, Steven Larsen is hoping he will be able to store data about job applicants and unemployment recipi-ents in one place. "I'm looking for-ward to being able to create data def-inition models across files," he said.

Sea-Land Corp. of Elizabeth, N.J. currently uses Software AG's Adabas as the DBMS for its human resources and sales and marketing applica-tions. According to Robert Ranalli. the worldwide container company executes more than 10 million commands a day on Adabas running on an IBM 3090, 3081 and 3083. With the new release's multiple thread or update capabilities, Ranalli said he hopes to remove the process-

ing bottlenecks. Performance improvements are also important to Sea-Land, "We asso important to Sca-Land. We have some huge files the size of two 3380s. Loading them can take a cou-ple of hours. A 25% to 40% gain in load time means a lot, particularly when it comes to maintenance. It could cut downtime by as much as an

Notes: Israeli firm to sell tool in U.S.

From page 19

and support its COS operating sys-tem, according to John A. Rollwaten

IBM mainframe production co systems is about to offer its pro in the U.S. 4D Software, Ltd. o

Selti Soft, Inc. of Banking Ridge, , signed a letter of intent with a & Brudstreet Corp. to execute cements on its Super-Link prod-

Why IBM built 10,000 miles of LAN oń one name.

When something works, you stick with it. Brand-Rex was the first to perfect a system to support the complex token ring Local Area Network (LAN) in IBM's own facilities. That's why

IBM has ordered more than 10,000 miles of cable to link voice and

data communications for itself and its customers. It's called the IBM® Cabling System. And it's the first ever to enable a single, "wire-once" medium to connect all the computers, terminals, work stations. telephones and PBXs within a site. A compact package of shielded twisted pairs, it runs from standard face plates to a patch panel which sends signals to any number of devices. So re-wiring is as easy as adjusting

the panel and moving plugs from one socket to another. Cable made by Brand-Rex is the backbone of more than 90% of the token ring LANs operating today. That's the track record IBM builds on.

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SYSTEMS & PERIPHERALS



Translating vendorspeak

p ity the DP manager who has to ask a question of the new breed tives, the marketing type who works for a company that makes supercomputers, minisupercomputers, massively parallel computers and whatever else

the so-called next-generation computers may be labeled As valuable as those machines may become as they make their way into the commercial DP world and as well as a

computer scientist may understand the technology, one strike against these computers is that vendors cannot or will not explain them in terms under-standable by the vice-president of MIS who has to budget for the system

The firms to be wary of are the startes exploring new markets. They and their marketing representatives get car-ried away with the black box concept.

Here are some examples of questions that one might ask of these vendors and their typical responses

What is the operating system? There isn't one.

Then how are data, instructions as peripherals managed? "The machine does it."

How? "It's a truly unique approa but we can't tell you how it works

but we can't tell you now it works because it's proprietary." (The transla-tion is, "Darned if I know.") What sort of applications do you expect your customers to run? "They can solve problems they previously thought your problems." thought were unsolve

See TRANSLATING page 26. Connolly is Computerworld's senior editor, systems & peripherals.

Datapoint expands Starfleet

Diskless PC processor. file server, printer added

By James A. Martin
SAN ANTONIO — Datapoint Corp. recently announced a host of products for its
fledgling Starfleet office automation line,
including a diskless personal computer applications processor, an IBM Personal Computer AT-compatible file server, a laser printer, a communications server and

two high-speed modems.

The products are almed chiefly at Data-point's installed base of customers, said Jim Rutledge, senior director of product marketing. In addition, they are designed to enhance further the availability of products operating on the company's At-tached Resource Computer (ARC) localarea network and proprietary operating systems, its DOS and the more recent Re-

irce Management System (RMS). Our strategy is to provide the installed base with higher performance products at a lower cost and, at the same time, ensure

compatibility with existing Datapoint sys-tems," said Edward P. Gistaro, Datapoint president and chief executive officer. "We have to take care of the customers that

have hung with us through all this time as well as look to the future," Gistaro told Computerworld recently.

Computermorid recently.

Datapoint is positioning the Starfleet as its flagship product line. The first of the series, the 16-bit processor Starship I, was introduced last September, allowing users to run applications under both RMS and DOS. Starship II, due out later this year, will include hardware and software inter-faces to Microsoft Corp.'s MS-DOS and

Unix (CW, March 31). The recently announced products, all of which are svailable now, included the Deskstar, an Intel Corp. 80286-based 16bit applications processor that provides 2M-bytes of internal memory, expandable to 4M bytes. The Deskstar is essentially a diskless personal computer that acts as a single-user workstation on an ARC network for Datapoint's Pro-Vista line of pro-prietary office automation software.

NEW THIS WEEK

nounces a Tempest version of

Less is more: Early user finds DG's smaller mini faster, easier to install

By Donna Raimondi
PEAPACK, N.J. — A company that planned to purchase Data General Corp.'s MV/4000DC minicomputers has discovered that the smaller DG MV/2000DC is aster, more powerful and much cheaper. The MV/2000DC — DG's answer to Digital Equipment Corp.'s Microvax II super

micro — is out of beta testing and ready to go. The system is simple to install and use, says Luciano Corea, vice-president of of-fice information systems at Beneficial

Data Processing Corp in Peapack.
"We have had a beta system for one and
a half months or so," Corea says. "About the biggest difference we find is that the 4000 has more ports. But with the same 5M bytes of memory, 120M bytes of disk space and fully laden — the 4000 with 32

ports, the 2000 with 24 ports - there is about a \$10,000 difference in price

about a \$10,000 difference in price."

Corea's company provides all data processing services to its parent, Beneficial
Corp. The Dr unit is installing five of the
new systems in five locations around the
U.S. and in Bragisard. This is part of an order for 21 MV/2000DCs that the parent
company placed in November when the

The staff that is tapping into the 2000DCs are novice computer users, Corea

says. They range from a senior vice-presisays. They range from a senior vacquession dent to administrative assistants. Where it is cost-justified, we will put everyone on CEO," be asys. The company has an independent firm conducting a study to determine the conduction of the conduction nine dollar savings that can be realized be-

IBM offers more disk support under VM and Series/1 network control tools /28 Southern Sys-

Zenith introduces its flat-screen CRT

tech.

nology/26

tems, Inc. announces a highspeed nonimpact page printer/30

■ Texas Instruments en. its Explorer LISP-based system

other new products, see pp 83-106.

INSTANT ANALYSIS

"Unix is Cobol one more time. It isn't as portable as people think."

— Richard A. Certese,
president of
Alpha Microsystems



The Same Day IBM **Announced DOS/VSE SP 2.1. EPIC/VSE Supported It.**

Some other systems are still trying to catch up.

re are three more: 1. EPIC/VSE avoids SVC trape—and the addition and ownhead that goes with them. 2. EPIC/VSE allows posting or to assorted that goes with them. 3. EPIC/VSE allows posting or to assorted that goes to determine the state of the state of

e and leatures directly to the competition— Workbook that makes a complex task easy.

Call Youer Systems now And let the other guys try to catch up with you

EPIC/VIE. The First. The Best.

TOWER SYSTEMS

Zenith displays flat CRT. claims significant advances

By David Bright
SAN DIEGO - A new flat CRT technology from Zenith Electronics Corp. reportedly offers up to 80% more brightness and up to 70% better At the Society for Information ay's annual symposium, held re-ntly, Zenith scientists demonstrat-

ed their patented flat tension mass (FTM) tube and released some details of the technology. Vice-President Karl Executive Horn claimed that the tube repreets "the most significant development in display technology since the

The FTM tube will initially be of-

fered to OEMs in a 14-in. version to be shipped in 1987. According to

color picture tube

ed to OEMs

Horn, the product will be priced com Both the FTM tube and conve nal color CRTs use a thin metal adow mask with hundreds of thou-ads of perforations to direct beams

In Zenith's FTM tube, the shad

mask is stretched flat and held under ension directly behind the tube's flat glass faceplate. Unlike the shad ow mask in conventional CRTs, the new tube's mask does not move under most display conditions, according to

and contrast when compared with conventional CRTs, the FTM tube is sharper color fidelity and glare-free

SYSTEM 2000 DBMS **Drives Industry** with \$12,000 License

SAS Institute Inc. establisher SYSTEM 2000 Data Base Management Systems a the foorfront of cole-using productivity roles with as \$1,000 first-year licenting plate. The system includes: an integrand data decisionery, on-the company-spides. 2 report generator, relicional data base access programming production of the state of the state of the state of the state of the In addition, users can now into SYSTEM 2000 DBMS with the \$A.57 System of outware to build data bases, some end enrice data, negro and manipular-data, perform analyses, and produce reports and presentation graphics. Even for the state of the information Conserve merc an gain access to SYSTEM 2000 DBMS develops.

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Kowin system links desktons

Multiuser net offers voice connections for Apple Mac, IBM PC

By Poggy Watt MONTEBELLO, Calif. — A multiuser desktop computer system with integrated voice connections that can incorporate IBM Personal Computers and compatibles, Apple Computer, Inc. Macintosh computers and other testing the waters for a summer re-

Kowin Computer Corp.'s Kowin Office features three types of desktop units, varying in sop and can accor modate of desktops into a turnkey network that des electronic mail, file sharing. mo pad, calendar and other mu user utilities. Each workstation inudes a standard telephone with a speakerphone and a 300 and 1,200 bit/sec. modem and can be autodialed

from the on-line directory The software, developed by Kowin and Quadratron Systems, Inc. of Encino, Calif., is based on the Regulus multiuser, multitasking operating system, an AT&T Unix System V sititasking operating compatible program, and runs com-patible application software, accordng to Kowin representatives

tached to the network, they can use the same network utilities but retain nd-alone functions, said Bour, Kowin vice-president of engi ering. However, the distinctive Macintosh user interface disappears under the Kowin network, and a miemputer user loses the autodial-

Kowin is also soliciting value-add-ed retailers and value-added dealers, Bour said. The company said the system will be on the market in July. Its primary unit is the File Server Graphics Workstation, with three 32-

ing at 10 MHz - one each for the operating system, applications processing and workstation process-ing: 1M byte of random-access memo-ry (RAM), expandable to 4M bytes; a M-byte hard disk drive; and options for as many as three external hard disks and a 20M-byte tape backup. It uses 1M-byte, 316-in. floppy

has IM byte of main memory and 64k bytes of programmable read-only memory (ROM). The file server has four RS-422 Kowin Network ports. which can connect up to 16 worksta tions for a maximum configuration of 64 users, though six to eight users
per file server is optimum, Bour said.
The other two Kowin desktop systems, the Office Graphics Worksta-

and Executive Workstation each contain a 68000 microp 16K bytes of RAM and 32K bytes of programmable ROM. The graphics workstation features a black-onwhite, 12-in. bit-mapped graphics display screen, as used in the Macir The Executive Workstation is a

er, transportable one piece unit with 128K bytes of display memory, a 25-line, 80-character, 94- by 34-in. LCD, measuring 640 by 200 pixels. Both workstations also have two RS-232 serial ports

Basic retail price for an eight-us configuration of the Kowin Office is \$13.955, which includes one Pile Server Graphics Workstation with a 20M-byte hard disk drive, single 1M byte floppy disk drive, 1,200 bit/sec. modem and the operating system plus seven monochrome workstations. The company said that the cost to a dealer is \$7,820.

Translating vendorspeak

Where will they get the software?
"We expect a third-party market to
develop as people realize how great
the machine is, with some of our
the back to sail their

the machine is, with some of our customers being able to sell their own applications once they write them." (The translation this time is, "Drop back 10 yards and pust.") It has become obvious that in too many cases the point people for these vendors don't understand the school of the push of the point point. technology themselves. And the re-searchers are content to design ma-chines for other deep-pocketed re-search customers who experiment with applications that ne production. The inventor marketing folks to hit the commer cial market with promises of "the

cial market with promises of "the flastest computer ever built at a cost of only \$XX million."

The problem is that few firms can kiss off that \$XX million in the hope that at least one of the doses "next-generation" vendors are the second coming of Cray Research, inc. The Cray-I came out without software, which came learne as Cray established its market. If a buyer is to gamble that another start-up can be snother that another start-up can be anoth Cray, that buyer at least deserves



At 19,200 bps, speed alone can be blinding.

In the race to claim the fastest high speed modem, many modem companies advocate basing your buying decision on one thing: speed. What's happened, unfortunately, is that modem purchasers are getting so caught up in modem speed they're losing sight of the most important consideration.

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In actual use the Codex 2680 delivers 99.9% error free data over more than 90% of standard 3002 D1 conditioned lines at 19.2 kbps.

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Speeds of Po2 kbps allow you to realize demantate increases in efficiency and productivity. Without increasing expenses or staff resources. And these savings add up. Fast. With its standard 2-channel multiplexer, you can eliminate extra lines. For example, by combining two separate 9500 bps circuits into the Po2 combining two separate 9500 bps circuits into one leased-line at P2000 bps typical savings for a New York to LA link are greater than \$24,000 per view.

What's more, the Codex 2680 offers complete network management capabilities for monitoring and fault isolation. It can operate independently or with your central site Codex network management system, to ensure greater network availability. In short, it's a modem that's really a true network system resource.

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Another important feature of the Codex 2680 is the fact that it is shipping right now. Not tomorrow. Now.

If you still have questions or would like a product demonstration, simply call 1-800-426-1212, ext. 227. Or write Codex

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The new Codex 2680 19200 bps high speed modem.

The quicker you do it, the faster you'll be achieving what you really want out of a high speed modern. Performance.



IBM adds VM drive support, graphics system printer, Series/1 net tools

By James Connolly
WHITE PLAINS, N.Y. —
Increased support for its
3380 dual-density disk
drives under VM was among

a series of product and enhancement announcements made recently by IBM. In addition to the VM/XA SF Release 1 DASD enhance-ments, IBM announced its 5087 Screen Printer for the IBM 5080 Graphics System, IBM Series/1 network man-

agement tools and limited service support for non-IBM rsonal computer products.
The DASD enhancements reportedly provide guest vir-tual machines full-function, shared support of 3380 E model disk drives and guest use of 3880 Model 13 and Model 23 controllers.

IBM said the guest ma-chines are provided with full-pack mini-disk sharing, support for DASD dump and re, the ability to use extended count key data chan-nel command words and the use of read device characteruse of read device character-istics channel command words. The enhancements will be provided on a pro-gram update tape in early 1987, according to IBM.

size paper or A-size trans

terface of a 5085 Graphics Processor or a 5081 Display. IBM said a single-copy color output takes about 65 seconds to process, and a mor chrome copy takes about 30

The screen printer is de-signed for high-resolution, seconds to process. The printer costs \$5,500 and will be available late this year. The Series/1 at ents included the Series/I EDA Definition

on I and the EDX Primary SNA Version 1 The products are corequisite. The definition utility was designed to provide a userthe network resource config-

uration records used to de-fine EDX Primary SNA Net-

EDX Primary SNA Vers 1 is said to support the IBM 3651 and 3684 controllers and the IBM 4680 Store System Controller: It provides physical unit (PU) Type 4 and PU Type 5 images to downline PU Type 2 controllers but is not attachable as a PU 4/5 type to a host. The

Utility Version 1 costs \$1,950, and the EDX Primary SNA Version 1 costs \$2,995 IBM also announced that its National Service Division service representatives will now be able to remove or dis-connect from a personal com-puter a non-IBM machine or feature that has been died

nosed as causing a system or

Announcing TI's Second Satellite Symposium: To Getting Started.

Wang group starts service

DEKALB, III. - A 1-yearold Wang Laboratories, Inc. users group has announced an on-line information service to provide subscribers with data bases of software with capabilities for electronic mail, public forums and opinion polling. WUSA/On-Line. st spo

sored by the Wang Users So-ciety of America, will operate as a special interest group on Delphi, a videotex service of General Videotex rp. of Cambridge, Mass. Information is available about Wang's Office Inforion System, VS and Pernal Computer systems. WUSA officials said the

service will save users the cost of support by allowing them to get assistance from other users. A Delphi subscription costs \$24.95 and includes a Delphi instruction book and three non-prime time connect hours.

or THE IBM S/38



SYSTEMS & PERIPHERALS

User savs mini offers more

se of Beneficial's 1.200node, worldwide network running DG's Comprehensive Electronic Office (CEO) integrated office system. The network now includes 12 proximately 16 remote loca-MV/10000 superminicom-puters and one MV/4000 minicomputer. tions. Two of the new systems will be configured with 24 ports the maximum num-

'I suspect this type of system is the machine of the future.'

The networked systems are linked via DG's Zodiac communications software by dedicated leased lines to an-

ber allowed, and the others will have 12 ports each. Users are currently being gram of formal hands-on training, Corea says. "If they program, they don't get a

user ID," he says. The only problem Corea had with installation was that it looked too easy "If you have a technical back ground, you think it's too simple to be real," he says.
"You hook terminals up,

start it up and say 'enable,' and then you don't have to tell it anything. A special cable determines intelligently what communications proto col it is hooked up to A menu of prompts walks

the installer through the process, and if the user cannot make decisions, the system makes a decision for him through a series of defaults The system has two batteries that power clock and date time, so if the system is turned off, those two bits of

information do not have to be reset. Each time the system is turned on it runs a total hardware self-check to make sure all is working well Part of the reason the sys. em is so simple to install is Corea and his staff asked for a lot of simple user-interface

menus when they were the beta test site, he says. DG wanted a machine us ers could install and main

tain, so Corea's people sug gested changes to make that process possible. DG then revised the original AOS oper ating system to Revision 'I suspect this type of sys

tem is the machine of the fu-Corea says. "It is small, has 1 million instructions per second of power and the cost/performance ratio has got to obsolete other larger modeis. I can't see huving a 4000 anymore

He points out that the cost per user, although he has not figured it out to the dime somewhere in the "That is a far cry from even two years ago," he adds.

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SYSTEMS & PERIPHERALS

Southern Systems offers nonimpact printer for minis and mainframes

By David Bright
CLEARWATER, Fla. — Southern
Systems, Inc. has introduced a
\$59,960 nonimpact page printer that
prints 80 page/min and is intended as
a cost-effective replacement for traditional impact printers.
According to company officials,

ditional impact printers.

According to company officials, the IBM plug-compatible Mercurion, 1/80 operators at three times the speed of traditional impact printers.

Most nonimpact printers in this speed race come from Xerox Corp. and generally cost about \$200,000, noted Josathan Dower, president of Datel Information Services, Inc. Waltham, Mess-based printer mar-

ket research company. The printer is also said to be compatible with all popular minis and mainframes. Like Southern Systems' 60 page/ min printers, the Mercurion 1/80 is position engine.

based on a Delphax Systems, Inc. ion-The Mercurion 1/80 reportedly of-fers a monthly duty cycle of 500,000 ages at a cost of about one cent per age. It uses 814 by 11 in. and 814 by 14 in. cut sheet paper. Features in-clude automatic forms creation with

round-corner capability and all-oints-addressable graphics. Deliveries are scheduled to begin

Datapoint adds to its Starfleet

From page 25

"This allows the user to run m wer on the desktop in memory and scessing, with prices that are com-

petitive with personal computers." Rutledge said. The Deskstar comes with either the DOS or RMS operating systems. Datapoint's DOSgate sof ware system, released last year, pro-vides an interface between the turn With the Deskstar's improved er

onomic design and memory capabili ties, we are able to move the 286 processor further into the heart of our product line," Rutledge said. The Deskstar is an enhancement of Data point's 8400 processor, released in

May 1984, and utilizes the 80286 chip, he added. The Deskstar sells for \$3,995.

\$3,996.

Datapoint also announced the Stargase communications server, which is a synchronous communications controller designed to link Datapoint systems through IBM's Systems Network Architecture (SNA), CCITY X.26 and the International Nanadard Granington Systems Standard Granington Systems Network Architecture (SNA), CCITY X.26 and the International Nanadard Granington Conference of System Standard Granington Conference on Systems (SNA).

Standards Organization Open System interconnect standard. The Stargate SNA/Synchronous Data Link Control gateway software enables RMS ARC users to access IBM 3270 and 3770 data communications facilities. The hardware component is a Motorola, Inc. 68000-based microprocessor that attaches directly to

an ARC network The Stargate server offers 19.2K bit/sec. transmission for medium to large networks and can off-load processor-based communications functions on an ARC network, freeing up previously dedicated workstations. Rutledge added. The gateway system software retails for \$2,750, and the server hardware costs \$3,500.
The Starserver 10 is an IBM Per-



Datapoint Corp. is positioning the Starfleet line as its flagship product.

sonal Computer AT-compatible file server running MS-DOS but was de-signed to work as a file server in small data entry and distributed data oceasing networks running Data-sint's DOS.

point's DOS.

Priced at \$11,495, the Starserver features an 80288 16-bit CPU, 5128 bytes of main memory, 4M bytes of cache memory and 60M bytes of fixed disk storage, expandable with an optional expansion disk unit.

Also included is a monochrome 14-in, monitor displaying 80 char. by 25 lines, MS-DOS and Starport DOS volume server and user diagnostics soft-ware. The Starserver works is

The Starserver system is ware priced at \$11,495. Datapoint also announced its first desktop laser printer, the Starbeam, priced at \$2,400. The printer oper-

ates in ARC networks or in sta alone environments, supports RMS-based office automation software and is compatible with Datapoint's arport processor. Starbeam prints 8 page/min as

Starbeam prints 8 page/min and features a dry monocomponent elec-trographic printing method and Cou-rier 10 typeface in normal, bold, ital-ic and footnote fonts. An RS-232C interface allows up to 9.6K bit/sec.

interface allows up to 80K bit/ser.
transmission ratell modems, which
baspoint offers under a third-party
greement with Data Race, loc, reportedly provide error-free transmisgreement with Data Race, loc, reportedly provide error-free transmislag, adaptive like equalization and allag, adaptive like equalization and altion, and the Race II offers the same
features along with the ability to statustically multiplex a second, indemay terminal channel on the same mary terminal channel on the su



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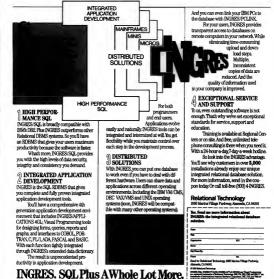
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INSIDE

The industry still

debates prospects for 1985's leading micro software start-

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MICROCOMPUTERS



SMALL TALK

Resolving the pop-up conflict

honever software developers say they're hammering out some guidelines for applica-tions, the rest of the industry looks on with skepticism. Developers are here or this earth to provide diversity rather than standards, and they don't share

ed puzzles.
But earlier this month many faced such a puzzle together, gathering at colorado Springs, Colo., to work on und rules for random-access mer ry (RAM) resident software. (Originally called "pop-up programs," RAM-resi-dent packages now often travel under the graceless name of "Terminate-Stay

dent" software.) No one quarrels with the goal of making RAM-resident packages, like Borland International, Inc.'s Sidekick, work more smoothly with other soft-

These programs, which hang around in internal memory while a main application is running and supplement it with all sorts of handy little tricks, have skyrocketed in popularity. But they're often unwilling to run with each other or with primary applications - arguing and crashing over

memory allocation and keyboard input and anything else they can find to fight Underlying the proosem are the user al compatibility culprists — overall weaknesses in the Microsoft Corp. MS-DOS design environment (particularly the lack of multitasking capabilities) See RESOLYING page 43

Bender is Computerworld's senior aditor, microcomputers.

Kenbak-1 enshrined as world's first commercial PC

By David Bright
BOSTON — A vintage-1971 Kenbak-1
personal computer with 256 bytes of memory won the Early Model Personal Comput-

er Contest held last week at The Computer Museum in Boston

The contest was staged to help the museum trace the history and development of personal computers before some of the machines become

Apple Computer, Inc. co er Steve Wozniak was a judge at the contest, which was sponsored by CW Communications, Inc. and Computerland Corp. After the announcement of the contest winner, Wozniak delivered a about his electronies

background and the early days at Apple.
Of the more than 320 entries received from 13 countries, 190 finalists were chosen. They will remain on permanent display at the museum. The selection criteria

were significance, rarity, date and com-

pleteness. "We rejected 138 PCJrs," Wor nisk joked. Built by the Kenbak Corp. with a retail price of \$750, the Kenbak-1 used eight

data buttons for input and eight lights for output. Intended for the educational, rather than the more popular sobbyist market, only 40 Kenbak-1

a commercial model built France in 1973: the TVT-1 otype, the first personal computer For more on this and able to display text on a screen; the VDM I, a memory-mapped video display genera-tor for S-100-based systems; and an MITS



other new products, see to, 83-105.

INSTANT AMALYSIS

"When a multitasking system comes in, and there's a need to

convert software, what will be the balance of value vs. pain? The demand for these RAM-resident packages indicates that there is a high value for

multitasking.

Pros wary of 'desktop publishing'

Initial acceptance could result in bad graphics flow

SQL-Calc ORAGLE

1005

By Peggy Wett

ATLANTA — As Apple Computer, Inc.
and a growing throng of developers de-clare that everyone with a microcomputer can be a publisher, the business world should brace for some horrendous graph ics from overzealous amateurs, public ofessionals warned late last month at mdex/Spring '86.

member when the Macintosh first came out and we all got MacNemoed to death?" asked consultant Frank Romano. At that time, delighted users crammed as many different Macintosh fonts as post-

ble onto a page. That scenario will only get worse if IBM Personal Computer users all fancy themselves publishers, he said.

We're in for a baroque period of graphic design," with graphically poor page lay-outs, wanton font mixing and design created under unskilled eyes, consultant Jack Powers predicted.
"My guess is people will begin to learn

to use the tools, though most people are horrible designers and will never learn," Powers added. He suggested substituting artificial intelligence-aided design pro-grams and emphasizing default choices. The publishing professionals winced at

Oracle's SQL*Calc makes a relational DBMS as easy as 1-2-3. SQL*Calc is easy to learn because its menu and

Oracle Corporation has developed a Lotus 1-2-3 compatible spreadsheet and integrated it with its ORACLE relational database management system (IBMS). The new product, SQL# Calc² as the first to combine a maintrame-class relational IBMS with an early-to-learn and famil: Spreadsheet easy-to-learn and famil-iar PC apreadsheet user

SOL#Calc is de for 1-2-3 users who've run out of memory, flexibility we you to put SQL de ommends into spreadsheet cells... just to formules. This permits you to access age amounts of data directly from your

Like all Oracle Corporation product SQL*Celc runs identically on mair smes, minicomputers and PCs. SQL*Cale's foundation is SQL*Calc's foundation is the ORACLE relational DBMS, which prodes users with a complete set of SQL commends rough which they can creets, retrieve, modify and herwise control their data. SQL is the industry stan-

identical to the SQL com-mands in IBM's premier main-trame relational DBMS pro-ducts, SQL/DS and DB2. Built on this powerful DBMS foundation is a Lotus 1-2-3

competible spreadsheet that allows users to put SQL com-mands into spreadsheet cells in the same way as they enter formula. When a SQL command for data retrieve

1-2-3. And SQL*Calc's ORACLE DBMS requires no

most UNIX systems. For further information, or to order your copy of SQL*Calc, call 1-800-345-DBMS. Or write Oracle Corporation, Dept. CS, 20 Davis Drive, Belmont, CA 94002.

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Gambling on software success: Mixed prospects for start-ups

Success requires enhanced products

Javelin Software Corp., insa Software Co. and Symantee Corp. were last year's three most visible mirocomputer software start-

up firms, breaking into an inly competitive market. fustry observers still hotly bate these firms' chances

very difficult to ak into the market with

productivity tools. You need a significant enhancement to a productivity tool to give it an advantage against exist-ing products," Alan Haid, eng products, Amn Haid chairman of Microage Com

puters, Inc., notes. Some of the start-ups lyes attest to the diffi culties. "A lot of people said we would be dead by now,"

acknowledges Steven Dow, president of Ansa, which es to brave the crit-

Javelin had a similar expe-rience. "When we started the company, everybody told us

it was impossible," says Christopher Herot, vice-pres-ident of engineering for Javelin, which began shipping its software last October.

"We were the last three companies to enter the market before the gase some, Herot remarks. He argues that firms such as Ovation Technology, Inc., which Technology, Inc., which raised millions and failed to

deliver a product, scared off five years ago all you had to do was photocopy a few pages of a manual and write a schlocky program." mantee Executive Vice-ident Rod Turner agrees.

I don't think the gate shut, but there aren't going to be too many companies that will loin the fray and be success-All three firms are cur-

rently showing signs of suc-cess, with products in the top 10 of the Softsel Computer Products, Inc. Hotlist. In fact, Ansa expects to recoup its total investment this year

with for innovation Softsel co-chairman Bob Leff calls all three products

"enormously successful" and ees that today's mar ket is highly difficult for new start-ups. "There is still start-ups. "There is still enormous opportunity for in-novation." But he adds that it is not the same as it was

three years ago Symintee's Turner claims to have sold some 15,000 copies of Q&A, while Ansa copies of QaA, while Ansa and Javelin refused to give sales figures. Ansa is cur-rently selling some 400 to 500 units per month to end users through high-end computer retailers, and Javelin is selling some 200 to 250 units

per month, estimates Bob Lefkowits, vice-president of software research for info-Nearly all agree that the difficulties start-ups faced

last year have multiplied. "The only viable alternative now is to get a Lotus or an Ashton-Tate to distribute the product," Herot says. Javelin ently reached an agreeent under which Ashton-Tate will distribute Javelin ernational markets, and Herot expects that to account for a significant portion of Some critics believe that

Some critics benevit and Javelin and Ansa, in particu-lar, have priced their prod-ucts too high. Amy Wohl, in the latest "Wohl Report on End-User Computing," monthly newsletter, believes that Paradox and Javelin are snazzy but still overpriced newcomers" that will have to reaching price-perform

come down in price "before parity with competitive data base and spreadsheet pack-ages." In fact, Ansa is al-ready offering a \$100 rebate

While each firm targeted different markets, they all positioned themselves for positioned themselves head-to-head compet with existing vendors. They

are being judged on succes rather than on sales alone. "All three have very heavy venture capital investment, and as a result it is not

igh for them to become stly successful software anies," says Jeffrey Tarter, publisher of "Soft-letter," a Cambridge, Mass-based newsletter, "They

people that have run out of were set up by venture capi talists who expect big market

shares and big sales vol-Javelin introduced a financial analysis package that butted heads with Lotus competition

Development Corp.'s 1-2-3, and while Javelin hasn't displaced Lotus at the top of the best-seller charts, the firm "Everybody has a spread-sheet. We are selling to the

gas with their spreadsheet, Herot says. Symantec launched Q&A, an artificial intelligence-fla-See GAMBLING page 42

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Televideo*

MICROCOMPUTERS

Iomega uncrates high-end storage system, cuts prices

Targets networking. printer applications

By Paggy Watt

BOY, Utah — Iomega Corp. released the Bernoulli Box Plus, a highend mass storage system aimed at networking and high-storage appli cations, and cut pricing up to 26% on

canons, and cut pricing up to 20% of all disk cartridge subsystems. The Bernsulli Box Plus is an 80M-byte external hard disk drive with two removable-cartridge 20M-byte drives. The cartridges support back-ups and can be read from or written

to directly.

Pricing starts at \$5,996 for the en-hanced hard disk, which comes with Q-DOS, file management software from Gazelle Systems of Provo, Utah; archival backup software; and a host adapter card for use with the IBM Personal Computer AT and compatibie systems

lomega is aiming the Bernoulli Box Plus at such high-capacity uses as computer-aided design and desktop publishing, according to Tim Orsley, omputer-aided design and desktop ublishing, according to Tim Orsley, roduct manager. The storage de-ices also support major IBM PC-DOS etworks, including PC-Network and he Token-Ring network, and Novell, Inc.'s Netware systems "We consider ourselves compe-tion to tape backup systems, becau

the removable cartridge drives are a means of additional on-line storage as well as backup," Orsley said. In addition, the storage system of-fers the "journaling" feature of stor-ing often-used programs and infor-mation on the hard disk and keeping data from separate applications on various cartridges, which may be

agged in as needed, Orsley said. Its working backup feature report edly allows immediate random access to backed-up data in the cartridges. The file manager can provide a com-plete inventory of files as divided to subsections by the user.

Orsley said that the product ma compete against the original Bernoul-li Box, which received an early boost as an alternative to the initially trou ble-ridden hard disk system in the IBM Personal Computer AT. Howev-er, between high-storage application areas and network storage, lomega is aying with a wide variety of man s," he said.

Announced last week, the price cuts on disk cartridge subsystems were effective immediately. Cost of

Board provides EGA overlays

By Douglas Barney
WASHINGTON, D.C. — U.S. Video late last month announced its RM-110 Video Overlay board, which the firm claimed is the first product to pro-vide video overlay for the IBM En-hanced Graphics Adapter (EGA) and compatible boards. The \$980 product an support computer training, video

There are several overlay bo or systems on the market today, but U.S Video has the only one available to people who want to use their own software. Our competition requires the user to use their software," said George Wheelock, director of market ing for U.S. Video. "We have made

ing for U.S. Video. "We have made our board as open as possible." According to the firm, the RM-110 brings BGA graphics and text togeth-er with full-color, high-definition video images. These previously in-compatible images can be shown at the same time on a stude monitor, in

imposed mode, or can be keyed to any color provided by red-green-blue

monitors.

With color keying, users can create video windows with the help of
windowing programs such as IBM's
Topview and Quarterdeck Office Systesus, Inc.'s Desqview.

stput from a television tuner, is ser disk, videocassette recorder, vidor camera or any other National Tele-vision Standard Code (which is the output from most video devices) out-put device can be displayed on a por-

tion of the screen using popular graphics software packages. RM-110 includes an on-board to access and control of up to 50G bytes of stored images, or 30 minutes of real-time action video on each side of a 12-in. laser disk. The product also ort software and moni

e now, the RM-110 runs

Borland's Turbo Prolog hits market SCOTTS VALLEY, Calif. - Bor-

land international, inc. last week be-gan shipping Turbo Prolog, its \$90.06 entry into the artificial intelligence age market.

Borland founder and President Philippe Kahn said that Turbo Prolog will be implemented on other sys-tems, including mini and mainframe

hike for its relational data base, Re flex, The Analyst, to \$149.95 effec tive May 15. It was introduced by erland at \$99.95 after the company Boriand at \$99.86 after the company acquired the original publisher, Ana-lytica Corp., of Fremont, Calif. Boriand also disclosed the avai-shifty of file format specifications for data base files built with Reflex. The company also promised that at least one Reflex add-on product will

Statistical analysis package debuts | On-line service pools

Allows numeric. graphic modeling

CORVALLIS, Ore. led "a word processor for nbers" by its developers, nt Five is a statistical dysis software package

for personal computers re-cently introduced by Pacific Crest Software, Inc. The \$195 program is in-tended for market researchers, strategic planners, engi-

sociologists. neers, sociologists, psychologists and others who use quantitative analy-sis for numerical and graphical modeling.
"Point Pive lets users structure a problem one way,

take a look at the results and en restructure it quickly for a different type of analy-sis," President and founder of Pacific Crest, Dan Apple

Apple also suggested that spreadsheet grams are inad quate for in-depth analysis
"We created Point ome users' frus

mechanics, limited function ality and confining structures of conventional comiter programs," he said

At its simplest level. Point Five operates as a programmable calculator with 150 built-in mathematical, financial, statistical and data ma-nipulation functions, such as standard deviation, return

In addition the built-in functions can be used as a fourth-generation programming language by experi-enced users, according to Pa-

cific Crest. Apple, who originally con-ceived of the program as an aid to cities and towns in planning municipal services, is optimistic that govern-

be particularly receptive to Point Five

'A well thought-out package' "It's a very well thought-out package," noted Bob Mayhew, senior ADP manager with the University of Cal-Ifornia at Riverside. Mayhew said that he was impressed by the flexibility and power of the program when he saw the Point Pive package dem-

The university will pay rific Crest a site license fee of \$1,800 and will use the

as well as for its own organi zational planning needs Another user, John Jackson, an operations analyst with Food Machinery Corp. in San Jose, Calif., said, "Before, I would have picked up a calculator and a scratch

Jackson said he has been using Point Five on a steady basis for the past sia months, mainly for number crunching. Jackson also claimed he compact disk read-only memhas found the software particularly useful because he ory (CD-ROM) optical disks. can write his own programs

Point Five runs on IBM Personal Computers and compatibles with two disk drives and a minimum of 256K bytes of random-access memory. It runs under Microsoft Corp.'s MS-DOS 2 and

ove, and works with an IBM or Hercules Computer Technology, Inc.-compatible graphics card. The program can also take advantage of an Intel Corp. 8087 math co fixed price gives subscribers the advantage of being able

stock info, archival data

By David Bright WOBURN, Mass. — Hop-

ng to attract corporate and financial decision makers who need both current and nast corporate business in formation, Datext, Inc. and Dow Jones & Co. have announced CD/Newsline. The

subscription product merges on-line stock quotes news stories from Dow Jones News/Retrieval service with seven years worth of business and financial informa tion from Datext's Corporate Database, which resides on

Available in the fourth quarter to existing subscrib-ers of Datext's Corporate Da-tabase, CD/Newsline will work with a user-supplied IBM Personal Computer and modem. Annual fixed sub-

scription prices begin at With the service, users want the service, users can obtain analyses of com-panies listed on the New York, American, over-the-counter and regional stock exchanges. The service's

to conduct an unlimited unt of research without being subject to variable on line charges, according to Da-text Marketing Manager Dan

stock quotes, users can also get a profile on the board members of a particular com pany, examine current and past news stories concer the organization and read re ports from investment ana-

Datext's software reportedly guides the user through each step of the analysis, us ing the same keystro ess both the CD-ROM and on-line data bases. The pack-age also includes software for transferring on-line in formation to standard appli eation programs such as Lo-tus Development Corp.'s

The Corporate Dat includes up to four CD-ROM disks, each focusing on a consumer. industrial, technological or service sector. Prices range to \$24,100 for a fourdisk subscription. discounts are available Schimmel said.



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MICROCOMPUTERS

Gambling on software success

From page 34

vored file manager and word processing package that it positioned against oftware Publishing Corp.'s PFS:File product

There was a perception that PFS was running out of steam," says Turner. However, Q&A has failed to 1985 to \$648 mill by 1989. This indi cates a higher rate of growth than spread-

eet, word pro

Push PFS File into obscurity.
With calendar year 1985 sales of
\$1.4 million, Symantec was the only one of the three firms to make the "1985 Soft-letter 100," a list of the top 100 micro software firms in the U.S., published by "Soft-letter." Ansa and Javelin were not list cause they did not begin shipping oduct until late in the year, Tarter

Ansa Software's data base man-gement package, Paradox, faced erhaps the greatest challenge in trying to give Ashton-Tate's Dbase III a run for its money. "Our feeling is that Dbase has been stretched as far sa it can be stretched," Dow says. In der to substantially improve base, Ashton-Tate will have to tart from scratch," he maintains.

Earlier this year, however, Dbase sulting Group. Market Access, which III Plus knocked Lotus out of its No. 1 forecasts to 1989, sees virtually no

spot on the Softsel Hotlist, and its growth in the spreadsheet market. sales show no signs All three firms of abating 77 claim steady Fortunately, Ansa growth in sales. But is selling into a grow ing market for micro

to survive they must There aren't go-ing to be too continue to enhance outer data have me many companies that will join the fray and be sucsoftware. The U.S. ect and introarket for such soft ce applications in were will increase from \$471 million in against de-

cessful. the primary product, Javelin soon will

DOUDCE & DEW VETing or integrated software packages, on of its financial analysis package according to Market Access Interna-tional, Inc., a San Jose, Calif.-based software research firm that was rethat is faster and offers more features, according to Herot. Javelin will also make a local-area able, but Herot declined to be more

Additionally, Javelin will announce a corporate pricing program and probably provide customers with a choice of copy-protected or non-

copy-protected versions.
Ansa also plans to inte Ansa also plans to introduce other products. Pinancial backer Sevin Ro-sen Management Co. "wouldn't have invested in it if it was to be a oneproduct company," Dow notes. Ansa has already enhanced its product and removed copy protection.

Symantec will eventually intro duce products that are already developed, but are too large for existing personal computers, and will also in-crease its publishing efforts. Turner

Says.

The firm currently offers two soft-

First commercial PC enshrined

Altair 8800, which was included be eteness. The Micral arrived after the judging had begun
— it reportedly was delayed by customs authorities who couldn't figure out what it was. Other noteworthy ent

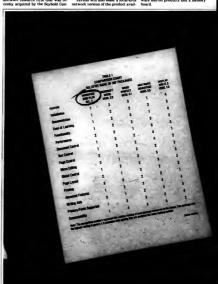
the Cromemco, Inc. Dazzier, which generated the first color video graph-ics, the EPA Micro 68, which fit into a briefcase; and a "Blue Box" built by Wozniak and future Apple partner Steve Jobs in the early 1970s for making free long-distance telephone

In his talk, Wozniak focused on that period of his life, rather than the present-day Apple or his new company, CL 9 (for "Cloud Nine"). He said he is intentionally keeping the home entertainment video prodcompany small, so sa to have fun and spend time with his family

Wozniak spoke fondly of the ga rage-shop days before Apple developed its rigid corporate structure For example, to finance the produc-tion of the Apple I system in late 1975, Wozniak sold his most valuable sion — an HP65 calcula for \$500 and Jobs arranged a 30-day credit plan for the necessary chips "It's amazing what you can do when you've got one level of management."

Currently, Wozniak works for Apple only as a consultant.

Last weekend, he graduated from the University of California at Berkeley, finally completing the education interrupted by a stint as an engineer at Hewlett-Packard Co. and by Ap-ple's success. Wozniak had originally joined HP to save money for school. Now, after accumulating enough money to finish college and do just ut anything he wants, he hopes to become a school teacher



MICROCOMPUTERS

Publishers wary of desktop units

From page 33

no said. "All we're saying is someone has the capability; on a desk, or in an office, or in the middle of the desert, to produce a page with mixed text and graphics that can be a master for

printing. Publishing professionals were also wary of the overall technical capabilities of low-end electronic publishing and are walting for camera-ready half-tone photographs and denser

dots-per-inch reproduction from laser printers.

However, they did not deny that emerging microcomputer publishing capabilities could prove important to business. For the corporate printshop, it could easily pay for itself simply by producing the business forms that otherwise go to outside presses, Romano said.

But at Comdex/Spring, desktop publishing promoters went much further with promoters went much further with promises of extensive capabilities and large markets. Charles Pesko, of the market research firm Pesko Associates of Marshfield, Mans, predicted the current \$55 million desktop publishing market will grow to \$1 billion by 1900.

grow to \$1 billion by 1990.

John Meyer of Ventura Software, Inc. described a lucrative corporate market with in-house documents being produced on PCs instead of pressea and also emphasized uses in professional graphics art houses. Ventura, of Morgan Hill, Calif., recently signed with Xerox Corp. for

important to exclusive distribution of its as-yet orate printurreleased Ventura Publisher for Miay for Itself crosoft Corp. MS-DOS systems.

Hewlett Packard Corp. eyes a strong market for Issee-printed publishing "in any knowledge-based business" equipped with PCs, according to Laserjet Marketing Manager Bill McGynn.

And Ken Skier, president of Ski-Soft in Lexington, Mass., a developer of an unreleased page-layout program for IBM-compatible machines, called current applications "primitive compared with what will

Several of the PC players said they plan systems that are expandable for desktop publishers who want to add specialized features. Skier said he believes any IBM PC-DOS system will have to Incorporate the same "what you see is what you get" principles that the Macintosh has popularized. "Forget the codeheavy font systems typical of profes-

seasy join systems typicar or protessional typesetting." Skier said. "Apple has clearly shown the way." Apple, which maintains it opened the desktop publishing market, appears undaunted at approaching competition from IBM and compatible suppliers.

ble suppliers.
John Zeisler, Apple business marketing manager, said, "There's a lot of confusion in the marketplace. With that factor, we have the leader-

Be said Apple aims at selling a whole system to a new market — and maybe sneaking in the side doors as businesses discover the Macintosh's other attributes. "We're not looking at a desk with a PC on it already," he said. "We're looking at the 40 million without any PC yet."

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but we decided to let the experts do the ralking lin a comparative report—the report containing the chart to the left—Bobert Lefkowits of InfoCorp Said

"WS 2000 + emerges as a clear whree in overall applicability, infocorp believes WS 2000 + would appeal to the largest number and widest variety of users. Its layered functionality, asse of issuring, and excellen-

to clerks to managers to executives."

And, after reviewing WordStar 2000 Plus Release 2 alongside MultiMate* Advantage* and IBM*5

WORTS

DisplayWrite*3, International Data Corporation's Jim Chapman concluded

"WordStar 2000 is our favorite—for ease of learning, ease of use... and for well-conceived and helpful documentation"

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<u>u</u>	COTORS.

RELEASE 2

Resolving the pop-up conflict

and all the other Ill-behaved applications out loose in the world.

Since early this year software houses have been kicking around ideas to simplify life. As a starting point, Microsoft put out a proposal for some guidelines.

for some guidelines.

Philippe Kahn of Borland said the main problem is how to determine when the operating system could be interrupted and asked Microsoft to release some relevant documents.

At this month's conference, Microsoft did promise to release more information on Ms-DOS interfaces.
This pleased the assembled developers, who previously had to take "the archeological approach to software engineering," commenced following the development of the conference of the c

Borland handed out the experimental package Memory Organization Manager (MOM). This is a RAMresident program for managing RAM-resident programs that deals with how packages are loaded and unloaded and how hot keys work

It seems likely, attendees said, that some gividelines will be reached and that these will have some kind of effect. At best, guidelines would minimize the computable compatibility testing that has been required until now. At worst, they would offer a handy mechanism for fingerpointing among vendors.

For the moment, there's plenty of blame to share among mainstream application vendors as well. The favorite example of ill-behaved software seemed to be Microsoft Word. But no one expects a magic solution, as Frankston poted.

"There are a lot of subtle issues here," he said. "As you learn more, it becomes more complex. One of the problems in software engineering is the big gap between getting things to run once and getting things to run consistently."

And Frankston pointed out that these kinds of programs represent "an interim technology," until the arrival of future releases of MS-DOS offering multitasking and upgraded D

HOW TO TIE YOUR PHONES AND COMPUTERS TOGETHER AND GIVE THEM A FAMILIAR RING.

Some companies can sel you a line of telephones. Others can sell you a line of computers. But we can sell you phones and computers and make them all work together allong the same lines. Which means you get a bit ampe of rethorking, viceo and data communications, and compute products that communication are customized speaker. Connecting person to person, departing the companies of the companie



COMMUNICATIONS



Vendors fear Novell trend

uring Comdex/Spring this April, four network vendor representa-tives quietly informed Seyboid onsulting Group Vice-President Tom hite of their fears that "an overburdened Novell" was offering less and iess support to the network vendors that sell its Netware software, a trend that could have serious implications for

eii, Inc. customers. "I heard this uniformly from these companies, who prefer to remain nam ess because they still have to deal with Novell," White reports. "They think of Novell's products as a big part of their selling strategy. And they are finding that the company's latest software en-

that the company's latest software en-hancements, as well as the training they need for their salesmen and mar-keting people, have been slow in com-ing. They have trouble getting Noveli's

The reason for Noveli's lack of re The reason for Novelt's lack of re-sponse, according to White, is that the company is allocating more and more of its resources to selling complete net.

It is resourced to selling complete net.

The resulting boards and soft ware to go with other vendors' production to go with other vendors' production last fail of Network Servers 258A and into Memory Servers 258A and product of the complete AT-compatible file servers with

puter AT-compatible file servers with built-in fault tolerance. At the same time, Novell announced the Network Server 68B, a new version of its origi-nal Motorola, Inc. 68000-based S-Net file server that supports 24 ports and See YEMDORS page 52

Horseitt is Computerworld's senior editor, communications.

Infotron, Applitek intend to finalize merger by June

By Eliasbeth Horwitt
CHERRY HILL, N.J. — A merger currently being contemplated by Infotron Systems Corp. and Applitek Corp. would mesh the two companies' local- and wide-area network offerings into one centrally man-

aged communications system, company executives said recently. ecutives said recently.
"Merging our companies will provide customers with a one-stop source for com-munications products and services," Ap-plitely President Ashraf Dahod noted. Merging the two product lines will enable

users to talk to any resource on the net-work without needing to know if it is local or remote, he added.

or remote, he added.
Inforces and Applitek are both confident that the merger will go through, according to Dahod. Their first joint project
will be to develop a gateway between iocal- and wide-area networks, he said. "We both have X.25 gateways, but the new NSA won't use

gateway, which should be out in about a year, will be user-transparent

The merger's second project, which also should take approximately a year accord-ing to Dahod, involves integrating the two

es' network management systems This will enable customers to coll This will enable customers to collect net-work statistics, do accounting and isolate problems on a systemwide basis, he noted. One benefit that Applithe expects from the merger is access to Infotron's far larg-er sales and service organization and For-tune 1,000 customer base, Dahod said. Founded in 1908, Infotron is a \$72.2

Founded in 1966, Infotron is a \$72.2 million, publicly heid company whose million, publicly heid company whose wide-area network offerings include statistical and Ti multiplexers, a Ti networking hub and a network management system. "We provide a data private branch exchange, but users want true, cable-based local-area network capabilities, such as See Network Capabilities, such as See Network Capabilities, such as

INSTANT

Novell continues to offer more and more hardware; that's like Micro-

GM, other giants join COS, aim to

By Mitch Botts
WASHINGTON, D.C. — The U.S. government is backing away from the Data
Encryption Standard (DES), a government-sponsored encryption algorithm that
has recently gained acceptance in the
banking industry for electronic funds
transfers and is used in most commercial
encryption products, according to computer
order to the control of the commercial
encryption products, according to compute

DES after '88

The National Security Agency (NSA) ses not intend to recertify the DES when it comes up for review in 1988 and plans to substitute new algorithms, according to a report by Datapro Research Corp. in Del-

The industry is concerned that the

NSA's action will lower the standard's credibility in the industry, even though See NSA page 49

protect users' rights

ALEXANDRIA, Va.

- Nearly three months after announcing its intention to join the Corporation for Open Systems (COS), General Motors Corp. became a member earlier this month, COS disclosed. The nonprofit organization revealed at the same time that Otticorp, Dow Chemical Corp. and local-area network vendor Bridge Communications Corp. are also new

COS is dedicated to furthering the de-velopment and industrywide implementa-tion of networking standards. Consisting entirely of vendor companies until recently, COS has initiated a me to recruit user organiz

See OM com: 52

INSIDE A local-area net-

work server unveiled by Ouadram features an uninterruptible power supply and up to 732M bytes of storage /48

NEW THIS Rvan-McFarland announces its

RM/Infoexpress PC network

ANALYSIS

soft starting to sell computers.

SAS Institute Sets New Standards for Mainframe C Compilers

SAS fastitute Inc. announces a mainframe version of the Lattice** Compiler, allowing development of C programs on IBM 730 machines and eavy interface with non-C programs and software packages. "C has emerged at the language of choice for developing applications that are portable across Voc President Ion one could, all activates Marketing Voc President Ion one could be activated to the company's programming investment.

eier as a tool for protextung a www-www-y-w-ming inventumen.

"Virtually overy one-y computer supports C," the statistics or complete such CG or CMS run on any properties, and portable programs created with the statistics complete such CG or CMS run on any properties. The complete runs standard IBM inlange convenience, allowing assembler language programs, and what protection is not high-level language, and analysis such as IBM's ISPP and GDDM to be in-wised flexely from the complete runs of the complete run

AC lossicion can be called directly from a high-bed integration on the called directly from C and bed integrated on the called directly from C and bed integrated on the called directly from C and for the called directly from the called directly for the called participation of the called directly from the called for the called directly from the called and the forection from Kernighan and Natio, the Lance-ton from Kernighan and Natio, the Called forection from Kernighan and Called and the forection from Kernighan and Called and the forection of the called and the called and the complete and there, "We've designed the listing and cross-reference to make a program may to follow making the called and consideration of the called and called and the called and the called and the called and called and the called and the

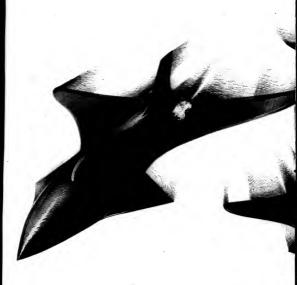
ted by the operating system."

Other mainframe products available from the Institute include a Lattice C cross-compiler, which generates PC object code ready to download to a personal computer; and Phoenix Software Associates' Plink86" for linking compiled programs and Plin86" for structuring object file libraries on

The products are licensed on an annual be The products are acensed on an annual basis, with technical support and enhancements provided free as part of the license agreement. Additional information is available from the Software Sales Department as SAS Institute Inc., Box 8000, Cary, NC 27511-8000 or by calling (919) 467-8000.

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World Headquarters 2300 Montana Avenue, Cincinnati, Ohio 45211

Quadram division unveils PC AT-compatible network server

Tool offers UPS. 723M-byte disk

By Jamas A. Martin
ATLANTA — The Ashernet Server, an IBM Personal
Computer AT-compatible iocal-area network server unveiled by Quadram Corp. at
Comdex/Spring '86, features
an uninterruptible power
supply (UPS) and mass storeach of the control of the control of the control
internal hard disk.
"With this product, we are

internal hard disk.
"With this product, we are
moving into a higher end system approach," said Randall
M. Johnson, marketing manager for Asher Technologies,
Inc., a Quadram subsidiary
that developed and is marketing the product.
"The reseller base has lately been migrating toward

row increasi ependent on le cal-area net-

nies that can solve all communications needs, ones that can get PCs to communicate with corporate data bases and distribute the pro-cessing and applications. We are working toward that

The 800W UPS, which is a andard server feature, enables the system to recover automatically after a surge or flicker of power, accord-ing to Asher Technologies Executive Vice-President Bruce Watson.

The server was designed protect against occur-ces that lead to data loss operation disturbances as provide data storage expansion capabilities to meet the most demanding applica-tions," Asher Technologies President William Riner said.

"As businesses grow in asingly dependent on local-ares networks, guarding

Everything in the file server is controlled by the UPS, which monitors the current coming into the server," Watson noted. "If the power should drop by as little as 3% to 4%, the UPS automatically kicks in.

The feature enables the file server to store all open files on the Quadram Quad-net internal hard disk and proceed through a system shutdown for up to 20 min-

powered by two inter-outteries. The standard Quadnet server comes with two batteries and space for a third as backup.

Available now, the Asher net Server includes the No-vell, Inc. Netware 2/286 op-erating system and interface card as standard features. The server can support up to four different networks

st are compatible with the

Neveil operating system.

The server can accommodate and many control of the cont

The server can accome

the third quarter of this year, according to Watson.

A basic configuration, with -109M-byte hard disk, 2M-byte RAM, 800W UPS

and the Novell operating sys-tem and card, is \$15,495; tem and card, is \$15,495; with a 60M-byte tape back-up, it costs \$17,495. The same configuration with a 183M-byte hard disk retails for \$21,995.

COMMUNICATIONS

NSA won't use DES

From page 45

experts say DES provides ad-equate security, according to Fred H. Diamond, editor of Datapro's information secu-rity report. The effect will be computer users' confusion, rhaps causing them to refrain from buying DES-based encryption products, he said. In a letter to Datapro, the NSA explained that because of increasing commercial sec-tor DES use for sensitive applications, it has become an attractive target for code

strong standard for most ap-plications. She expressed concern that the NSA deci-

til the next algorithm appears.

Reynolds and Diamon agreed that the NSA decision when rely mes at a time when reluctant users are beginning to Joan Reynolds, vice-presi-dent for data security at Chemical Bank in New York, maintained that DES is a

end, who asserted that the DES is still very secure, speculated that the NSA is concerned about the security of DES keys used for

NSA's letter to Datapro confirmed that the DES will

not be recertified and said new algorithms will be intro-duced for NSA's Commercial Communications Security Harold Daniels, deputy di-

rector of information securi-ty for NSA, stated that the use of the DES algorithm "has spread to sensitive ap-

target for our adversaries. Therefore, we have determined that it is in the U.S." interest to introduce new

cryptographic into the CCEP." Daniels' letter said that the banking industry can continue to use DES for elec-

tronic funds transfer appli-cations "where the contents of the message must be validated and the information content is highly volatile and seldom considered sensitive. rity problems or risks in-volved with the continued

use of DES equipment, and products endorsed prior to products endorsed prior to 1988 may be used for the foreseeable future," the let-ter said. However, It added that the NSA expects most DES equipment to be phased out and replaced by security products assessment assessment

out and repaced by security products employing new NSA-approved algorithms. Robert P. Campbell, a com-puter security suthority and president of Advanced Infornation Management, Inc. in Woodbridge, Va., said the NSA decision will disrupt the slowly emerging interest in encryption products and will discredit the banking indus-try's adoption of DES. He also disagreed with asser-

tions that the DES has been widely adopted. The DES was adopted by the National Bureau of Stan-dards in 1975 and by the U.S. rtment of the Treas in 1984 for electronic fund

Merger set to finalize

From page 45

high-speed file transfer," In-fotron Vice-President of Mar-keting and Development Rob-ert Bower noted. "We like the versatility of Applitek's product line, as well as the fact that it sells network solutions to the high end of the market, as we do," Bower

Applitek's Unilan product line links a broad range of computers and terminals over broadband, base-band nd optical fiber-based local rea networks. The company so offers gateways to main-ame hosts and CCITT X.25

Earlier this month. two companies signed a non-binding letter of intent to template an agreement, ser which Applitek would come a wholly owned infotron subsidiary. The two narticipants hope to finalize the transaction by June

If the agreement is called off, Infotron will, under certain circumstances, invest up to \$6 million in Applitek

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COMMUNICATIONS

Vendors fear Novell trend

2G bytes of disk storage. Novell has also opened nine

Netware direct sales and support centers in the U.S. during the last few months, with three more open ings planned for this year The centers will offer 48-hour turnaround for servicing products, as well as training courses in Novell products

Novell Vice-President of Marketing Craig Burton denies that the new Netware centers will seriously compete with third-party resellers. "All of our resellers and distributors can use the centers' training and techni-cal facilities," he says. "Besides,

they only sell directly to our large corporate customers that buy at least \$1 million worth of Novell

Burton admits however that the new Network Server 286 series will puter vendors like Molecular Computer. Inc. and OSM Computer Corp. which package Novell's software

with their systems. But other Novell people have ad-mitted the truth of White's accusation "I asked them. 'Aren't you comneting much more directly with your third-party resellers by doing thirs?," White reports. "They said, "Yeah, you're right; we're not happy

about it, but that's the way we're about it, but that it in eway we re going strategically."

Novell's strategy may backfire, considering the firm owes much of its notable success in the volatile. overcrowded, IBM-dominated personal computer networking arena to its third-party vendor strategy Novell currently has 30,000 net

works running its Netware network operating system installed world wide, running on the comm tions boards and computers of more than 30 network and multiuser microcomputer vendors

And the company keeps adding to the list. Earlier this month, Unger mann-Bass, Inc. announced the availability of Netware on its Net/One Personal Connection. This seems at first glance like plain good news for Net/One users, who now have a choice of three network operating systems: Noveil's, IBM's PC Network

or Microsoft Corp.'s MS-Net. The question is whether Novell provides adequate support — not to mention the assurance that succeeding versions of Netware work with all 30-odd product versions - when

it has so many other fish to fry Of course, not all of Novell's rela tionships with its OEMs have been all that cordial in the past. Although quite a number of 3Com Corp. net work boards get sold with Netware software the two firms are old rivals whose executives reportedly be gan taking pot shots at each other not long ago. The feud was recently fueled by 3Com's introduction of th 3+ networking software, which competes with Novell's Netware.

According to Proteon, Inc. Chair-man Howard Salwen, the new outlets should not greatly change the com pany's fairly satisfactory reseller reletionship with Novell We and Novell are constantly

bumping into each other in distribu tion channels, but we try to stay cordial," he says. "We use the same distributors. Novell carries our hard ware, we carry their software. We can't both get the same customers But we really don't care who sells our boards as long as they are sold All very well for the Proteons of the world; but what about the users who are counting on having the latest release of Netware work flaw-lessly on their Proteon token-ring boards or their 3Com 3Server?

Nathan Roseman, president of net-work value-added reseller and con-sultant LAN Services, Inc. of New York, reports that he recently heard Novell President Ray Noorda boast of late that Novell sells some 200 products. "When you consider that products. "when you consider that their entire company consists of about 400 people, it's no wonder that it takes so long to get anything from

GM, other giants aim to join COS

From page 45

Lincoln D. Paurer, president a chief executive officer of COS, in cated in a prepared states signing up GM was an is

"The company has been very ac-ve in the standards movement," surer noted. GM sponsored the de-elopment of the Manufacturing utomation Protocol (MAP) and is properly including the company of the compa n of MAP as the factory fi

ined COS to protect us " said Mark Cochroft,

therests," said Mark Cockross, on charical spokesman. GM alresdy sits on the MAP and se Technical Office Protocol stan-ard steering committee, but the firm ants to participate in "the broader sues being addressed by COS," he

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Executive Report



INSIDE

A primer by Walter Ulrich on electronic mail implementation/54

Complement or implement: An interview with Peter Waai of GTE Telenet/59

Will voice mail overshadow electronic mall?/60

Electronic and voice mail

They're no match for each other - yet

By JOHANNA AMBROSIO

eio is a Queens, N.F.-based free-i

mail. For now, at least, most users ar not to keep the two worlds separate roblems with voice mail are straight-

red out.

Few doubt that voice and electronic mail will meday marry and that video and other forms of formation will join the fray as well. But, in the ords of one observer, "We'll all be significantly der by the time that occurs."

der by the time that occurs."
"Voice mail technology has not en accepted," says Ed Thomas, arketing manager for software ap-ications in Data General Corp.'s oduct marketing division. "It's a we technology for users to justify, dt they're not resily sure of its ap-ications."

Voice mail is beginning the acceptance curve other technologies, such as electronic mail, braved before it. To implement voice mail now is to be a true pioneer. Beware of the arrows.

Executive Report Elect

Electronic and voice mail — no match vet

oot, ne agos.

Connell's latter point is emphasized by the way
n which vendors are selling electronic mail. In-tend of focusing on the timesaving and productiv
ty bonuses, vendors sell electronic mail as a way

Dern' reluctance to combine electronic mail and voice mail is not necessarily due to a lack of products that meet the need. Data General and Digital Equipment Corp. have voice mail products that are integrated with their office systems oftware, Competential Veneziero (Office (128)) and All-in-1, respectively.

"I hath avegame, voice mail is an option on the

and All-In-1, respectively.

In both systems, voice mail is an option on the office software's main menu. Users are notified on their computer terminals if they have voice or data messages. And users can phone in from remote locations to vertieve their messages. Besides these systems from established office systems wendom. IBM recently introduced a voice systems wendom.

systems vendors, IBM recently introduced a voic mail option for its Personal Computer. The comp ny also associated the Phonemail/YM link, the integration of its Professional Office System electronic mail system and Rolm Corp.'s voice messasing system (CW, May D, A version for the ATM Unix Personal Computer is sisted for a June intro

section.

But at best these systems are only the first eneration of voice mail systems yet to come. An leal voice mail system would be fully integrated into the electronic ma deal voice mail system w

77 Electronic mail is beoming a

word by allowing voice annotation of docu-ments. In this way, for example, someone could leave a voice mer sage that a document

needs approval.

Another useful feature is the ability to access voice messages from the computer terminal or workstation as well as from the phone. Users would have the ontion of printing out

es or answering them right away in writte form if that were more appropriate than a spok renly

Further, the voice mail system should be part r urtuer, the voice mail system should be part and parcel of the computer already being used, appearing as an option on the main software menu. And, of course, ease of use is paramount to the many levels of employees that would operate voice mail. voice mail

None of today's available voice mail syst meet all those basic requirements. But as more vendors introduce products and as more people begin to use them, capabilities will be refined and

You need to get through to the second or third generation of voice mail before the features are there that will make people want to use it."

Connell says.

Connell likens the voice mail situation to the first generation of personal computers. "With PCs, you had the technicians who used the first, awful machines. They complained, vendors listened, and the subsequent generation of software and hardware is finally making things easier to

At present, only a handful of users are willing to even experiment with an integrated voice in Continued on next



a services solely to the parent

company.

Beneficial is pilot-testing DG's

voice mail system in the office information systems department, according to Luciane Corea, vice-president

of file information systems.

Eight staff members are participarting in the pilot, which should be

completed at the end of October:

we have a problem that needs to be

solved with voice mail — that we're

not throwing out a solution in search

on throwing out a solution in search

solved with voice mail — that we're not throwing out a solution in search of a problem," Cores says. The pilot project will analyze user friendliness and the amount of disk storage required, identify applica-tions for the system, weigh cost re-quirements and see if the need justi-

quirements and see if the need justi-fies the cost.

Beneficial has also beta-tested
DG's integrated voice/data terminal,
which also uses the CBO software.
Corea says he likes it because if
saves desk space, and he found the
automatic caliback feature especially

useful.

Corea says he has about 35 DG

Dasher D536 integrated voice/data
ternalnals on order for executives
and professionals. Because the terninal has a smaller screen and fewer
keys than other terminals, it would
not be used by a person with high
text-entry requirements.

"I don't see voice being made
available to everyone because of the
disk stace required to atten voice

disk space required to store voice messages," Corea says. "It won't re-place electronic mail; it will be commentary. I see voice mail's major efit as sending and receiving mes-ments while traveling."

or all their convenience, how ever, there is a downside to ice mail and electronic mail. "It mires a bit of cultural change,"

committee of the control of the cont

77

People are used to conversations being private, ad hoc communications that are not retained for future reference. With voice mail, new rules will arise as to what messages to keep and for how long.

aplement private answering ma-nes. When these holding compa-s enter the fray, it will help spec nce for voice m

Ramellini says, "When office stomation works well, it doesn't ges the way a company oper-

ates. That doesn't happen overnig No matter how wonderful the tech nology, human beings need time to or problem is the lack of

dards in the voice mail industry Because voice mail is a nascent technology, there's no real pressure on the vendors," Ramellini says. "Everyone is still arguing over what voice mail should look like and what it should do," according to Larry Pinocchi, president of Mess. Larry Finocchi, president of Messag Processing Systems, inc. in Char-lotte, N.C. "So at this point, integra-tion gives you half-baked voice mai and half-baked electronic mail." Since voice mail is such a resource

hog on the computer one cannot run voice mail and electronic mail — or other PC applications, for that matitaneously. "It's an eiter - simi ther/or situation; you can't do both at once," Pinocchi says. "Se it wouldn't be right to marry them at the moment." He does agree, however, that they someday will be blend-

Another factor repres mail's growth is corporate structure
Data processing and communication
are two separate worlds, although



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promote that introductionly need the needs of the con-traction of the cell ones with the preparation from We're also integrated in another vay—peoprephically, As-more and more organizations need to confinion! reasons and data on a workholde basis, they need a called of support that is considered workholde. Some 46's reach is unique among independent software vendors—with products installe in \$2 countries.

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Data General a Generation ahead.

Mail integration must win top-level support

Executive Report Electronic and Voice

No clear winner in war of mails

By MOLLY UPTON

Will the advent of voice mail supersede the need for elec-tronic mail (E-mail)? No more so than speech supersedes written and graphic communications.

But the question becomes interest-ing when one considers that several vendors are working to provide the

Upton is vice-president, applied technology services, at Internationa Data Corp., Framingham, Mass. ability to originate and receive both voice and electronic mail capabilities from the same devices. IBM and Rolm Corp., for example, recently ed a link between Rolm's

Phonemail and the IBM VM host ICW. May 51. A VM user can now get notification of an existing phone mes-sage on an IBM Professional Office stem terminal along with regular E-mail. Even then, however, there will be a major difference between the two methods of communication E-mail, while used for messaging. is also becoming acknowledged as the primary transmission method for management reports, data and docu

nts and nearly anything else digi tal that needs to get from one person's workstation to another's E-mail clearly has the edge when it comes to preserving the message

either electronically or on paper; thus is useful for documentation. nts to be ome systems allow do further edited, eliminating rekeying

Companies are clamoring for the tools to allow managers to cut and paste reports and spreadsheet analy sis into E-mail for sending to others internally. Some organizations are writing their own interfaces. Clearly there is opportunity here for some vendors to improve the utility of their E-mail by offering the ability to cut and paste documents and data from other sources into their proprietary E-mail products.

us, in addressing the capability to transmit data, documents and graphics as well as the need to docu ment for perpetuity, voice mail is not enough and E-mail has the edge For the user considering other ap-

If you think bringing in new iness is difficult, try bring-

For Burroughs users, how-er, this problem simply does tenist. Thanks to our cost-

ent A Series—a wide re of mainframes designed

and require fewer suppor pie, but also to allow our

only to cost less to

plications, the following criteria must be considered when decidir which medium to use:

Length of message.
 Access to sending or receiving

strument.

• Ease of use of systems used by other enterprises.

• Individual proclivity toward

verbal or written communications Obviously, voice mail is more appropriate for relatively short mes sages while E-mail can handle both short and long messages. Once printenvision the day when employees traipse off to the washroom with a

tape of voice mail.

minule unless one takes one's own portable personal computer. Thus, the text-to-speech synthesis feature (as in Digital Equipment Corp.'s Dec-talk) allowing receipt of E-mail messages via telephone should become more common place. If message senders would leave an executive summa ry of their E-mail messages, then when the receiver reached a long message, he could listen to the sur mary and print it out or listen to the

phones to reach the desired extention's phone mail. The more suphisti cated on-site systems will route the caller into the appropriate mailbox without requiring the extension to be entered via a Touch-Tone phone

using a plain old Touch-Tone, and generally there are voice instructions to assist an incoming user to another system. Thus, for the caller, there is little trauma associated with

tivity among E-mail systems is be

be transparent, enabling a user to learn only one method of access. Vendors such as Soft-Switch, Inc. are providing interfaces between on-site E-mail and services like MCI Con

nications Corp.'s MCI Mail.

The choice of medium in message handling is generally an individual decision; some people like the key-board, and some like to talk. There

vice versa. In enviro ents where E-mail is

an environments where z-mai is used heavily, communications seess to evolve. One company noted that executives key their own messages, so the E-mail tends to be succinct and to the point. In at least one site, users observed that sometimes mes-sages were misinterpreted because.

communication or the absence of long explanatory preambles. Eve ally there evolved a common und standing of E-mail etiquette.

In the current envi

Expanding business in difficult, try bring-ing in a burger computer system to handle that business. Unless your computer company designs systems with growth in mind, you'll have to reprogram all the data from you old system to run on your new system. An undertaking that could drage of in more than a year and cost hundreds of they-sands of dollars. your computer system shouldn't be harder than expand

business.

ed out, E-mail messages can be collected and read later. It is hard to

There are telephones at more handy locations than there are ter-

entire message when convenient.
Use could be limited because many
systems require Touch-Tone tele-

E ase of use is and will be a factor. Everyone is capable of

leaving voice messages.

E-mail also is climbing aboard the easy-to-use bandwagon. Interconnec

coming a major trend. E-mail ser-vices are forming links between themselves, which, it is hoped, will

are some people who flock to the use of verbal store-and-forward mes-sages and detest the keyboard — and

sages were misi the lack of infle

nunications, the asynchron delivery inherent in both voice and E-mail obviates the obstacles im-posed by time zones and helps elimi-nate steps in the tag game. They are

Executive Report, Electronic and Voice Mail

Continued from page \$5 DP and MIS are certainly gaining more control over communications, much as they did over personal computers. But the organizational schism means that no one wants to

mucn as they did over personal computers. But the organization also his means that no one wants to clase on voice mail without a clear reason, or mandate, to do so. "It doesn't seem as though there are people within corporations out there selling voice mail," Connell says. "Because it doesn't relate to the PC world or to the DP world, it's a stand-alone function. It doesn't lead to anything — and so doesn't

lead to anything — and so doesn't have advocates." Pilot programs for voice mall have run into numerous problems. According to Jadry Abreu, director of advanced to the state of the state

voice mail out of necessity.

iven all voice mail's uncertainties, some users opt to lease or rent systems so they can keep up with changing technologies and needs. Other users, such as CISI, use a voice mail service bureau. By the end of the year, CBS will spend about \$150,000 on outside voice and services. Some 1,500 people use the voice mail system. CBS started using voice mail two CBS started using voice mail two

CBS started using voce mail two years ago in its records division when, in a cost-cutting measure, some field sales offices were closed. "But we still had to keep in touch you will be a support of the cost of t

salespeople. And sales managers in the home office could ascertain the status of the accounts," Abreu says. "We've thought about buying our own equipment, but then you have to consider depreciation, maintenance, one to two staffers to administer it 77

When we piloted a voice mail system, it didn't work, because we were piloting it in our department. Voice mail doesn't work well for people who work together closely; they figure they'll see you later anyway. The people who it works for use voice mail out of necessity.

> — Judy Abreu CBS advanced office systems

and the floor space, which in New York is expensive," she adds. In addition, given the requirements of the CBS users, the in-house system would have to be operational round-the-clock. So CBS will delay

er few years.

A second CRS application is at the broadcast group, where top broadcast executives keep in daily contact. Reports on daily events, daily ratlings for the television shows and other information is uhared. "At CBS, a lot of top executives use the system, and they get upset if anything goes wrong." Abreu says.

emplie its reputation, voice mail is not really that expensive when considered on a per-user basis. Assuming there's money in the budget and a reason for implementing it, voice mail is not too difficult to cost-justify. An average system costs about \$500 per user to install and maintain. The price includes training and communications costs.

But it can easily save twice that amount. If one considers the reduced number of calibacis, the reduced number of typed memos, night-rate savings, reduced cost of chitchat and the like, the savings for a 25-person



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The Gartner Group has been using a Rolm voice messag-

ing system for more than a year now and Ringling con-"I've come to appreci ate it as a timesaving tool. I can retrieve or send messages from anywhere, and it's useful for communicating with people in different time

But, he adds, "I still think it's impersonal. And I don't think it cuts down on tele phone tag; it's just a differ-ent form. A colleague leave ent form. A colleague leaves a message on my machine. I

leave one on his. The difference is that if he leaves a proper message at least 1 know what he wants and can call him back prepared." F)nally. Ringling says. There's a stigma associated If you have a secretary, you're a more important per-

Still, the benefits of voice messaging are legion. And some voice mail users

ional, Inc. aystem called Aviar that takes voice saging a step furth The system takes data from TWA's mainframe and broadcasts it, in natural ce, to callers

The voice mail system or rently provides three applications relating to work scheduling for flight crews, but many more are being

are way ahead of the pack. Trans World Airlines, for Whitmore. Former TWA example, has a Voicemail Instaff vice-president of opera-tions control out of Jamaica. N.Y., Whitmore is now a Wilton, Conn.-based consultant in alrline operations and

ster develor All three TWA applica-tions are accessible from any tone-generating telephone by a toll-free number. TWA chose the Voicemail International system, White says, because it is the only one that combines voice mes

saging functions, data base access and a natural voice. Natural voice is important, Whitmore says. "A syn thesized voice sounds fake: a natural voice is easier to lis ten to and is just more pro-

77

Despite its reputation, voice mail is not really that expensive when considered on a per-user basis. It is not too difficult to cost-

justify. The airline's first voice application, installed in Oc-tober 1984, informs approxi-mately 8,000 crew members ly 8,000 crew men what flights they're sched-uled to fly in the coming

The schedule of flights is blished and distributed to flight attendants and pilots, who then determine which flights they wish to be on. Staff members go through a bidding process for their pre-ferred flights. The flights are

actually assigned based on seniority and other factors seniority and other factors.

To get the results of their bids, TWA employees phone the voice mail system and enter their identification and security numbers. The system prompts crew members with voice commands as to what to do. The process generally takes 20 to 40 seconds to command the committee of the commit

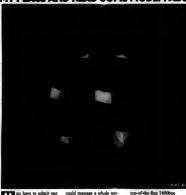
The system saves both time and money over the old method, in which the crew members called a central of-fice location and asked an office worker to look up the information. Before the voice mail system, the average phone call ran 114 to two

"People don't waste time when they're talking to a machine; they don't ask about your wife and the lat company goesip," Whit-re says. Further, valuable one time isn't wasted nile waiting for someo il a file or because ph

ng to mus

er money saver he

"AFTER DINNER, I THOUGHT WE'D GO TO MY PLACE AND READ SOME MODEM ADS."



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cutting down on the work load assumed by the office

Because the voice mail system handles the crew members' requests, office workers can concentrate on

other teaks About six months ago TWA installed the second voice mail application — the bidding process itself. At present, flight attendants are the only ones using the system for this purpose; pi

lots will be added shortly. With this application flight attendants call into the system to enter their flight preferences. Between 20 and 30 prompts help em-ployees enter the information, and after every three or four prompts, the system reads back their answers to

ensure no mistakes have It is. Whitmore says, a real-time transaction. Data is captured and sent to TWA's host computer. The hidding ress takes between three and five minutes; employees are charged \$4 each time they call in a had. This hargeback system helps defray costs, and employe who require just one call per month to determine their entire work schedule, have emraced the system whole

The third use of the system is for so-called reserve employees to determine their

A reservist is someone ho has not been assigned a flight but will fill in for sick or vacationing employees. eservists are contractually a day to check on their sta-

Once the reserve employ ee has called into the system and has provided the appropriate identification and ssword numbers, the system queries the host compu er and lets the caller know

here to report for duty. TWA probably has anoth er 20 applications for voice mail yet to be implemented, according to John Zigler, the airline's director of flight operations data aystems.

The next probable area
TWA will target is for the

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system to call out to tell people something has changed Currently, users must call in to get information.

We've got a long way to go. We haven't even come close to exploiting all of voice mail's applications." Zigler says

ther carriers have begun implementing voice messaging systems Whitmore says. Pacific

Southwest Airlines, Western Airlines, Continental Air-

lines and People Express Air lines are using voice mail for applications such as reservations and management com-Another possibility in the

airline business is to use your mail to cut down on the number of shandoned calls when a potential custom er hangs up rather than face more of a delay. Often, Whit-more says, these delays are

the result of reservation agents giving out information to people calling to en-sure that their flights are on time or to find out when the . flight of a friend is arriving Voice mail could also be

used to give the information seekers direct access to an airline's data base, so reservation agents could concentrate on the potential customers who call with rate

People don't waste time when they're talking to a machine; they don't ask abou our wife and the test company

gossip. _ A W

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10

'I was reluctant to use voice messaging at first, because I thought it was impersonal. But I've come to appreciate it as a timesaving tool.' Other examples abound. Rameiline tiths of a pharmacevaticals firm that put in a voice mail system for its field marketing organization. The marketing representatives were spending the entire week on the road and, much to the consternation of their families, the entire weekend on the phone trying to catch up with the internal corporate people.

the internal corporate people.
"This situation created tension
with their families. So voice mail
was installed. It cut down on phone
time and provided better morale,"
Ramellini explains.

In addition, he says, it was used as a marketing tool. The marketing director would broadcast a voice memo to all sales reps, asking how the introduction of a new product was

introduction of a new product was going.
Within a few days, after the answers came in, the marketing director was able to ascertain which approaches worked best and, if appropriate, how to reposition the

product vis-a-vis the competition.
"It was instant market research,"
Ramellini says.
Typical of today's users is the

CSR-Powertron division of Contraves Goerz Corp. in Pittsburgh. This division; which manufactures controls and motors for machines, uses voice mall—Electronic Voice

Exchange from Message Processing Systems, Inc. — as a way for salesmen to communicate with inside staff. In Contraves' case, the messages

In Contraves' case, the messages can be heavily technical because of the nature of the business, according to Neil Przepasniak, sales manager. "A lot of salespeople complained

they couldn't contact the engineers, which is necessary because we sell highly technical products. A salesman will need to ask an engineer if a modification can be done, and now he can have an answer for the customer in hours and not day, "Przepasniak says. About 100 people are using the system.

Another typical user — at least at this stage of the technology — is Joseph T. Ryerson & Son, Inc. Based in Chicago, the steel service center purchases unprocessed steel and performs the first metal fabrication. Ryerson customers buy the steel,

forms the first metal fabrication. Ryerson customers buy the steel, now in bars and sheets, and further process it. Ryerson has installed voice mail in corporate headquarters and in about one-half of its 25 plants nationwide as a way of increasing com-

outside sales staffs. Voice mail will be installed in the other plants by November, according to Martha Graffy, a Ryerson business systems consultant. Ryerson first started installing the system last July. The two most important selection criteria were cost, and ease of use: the firm chose

cost and ease of use; the firm chose the Cyndi system from Genesis Electronics Corp. of Polsom, Calif. About 100 calls each month are processed through Cyndi. From 60 to 80 people at each plant use the system. Primarily the users are salesmen and the inside sales staff, but the system is open to all who wish to use it.

Graffy personally goes to each plant to conduct training and limits the classes to between 10 and 12 people. She says the salesmen find the system easy to use, and, she adds, "Everyone likes it."

ndeed, most companies are using voice mail as a productivity and not a bottom-line tool. That may, however, change as voice mail becomes more accepted and more integrated into a corporation's office

Finally, there is also some credence to the theory that integration doesn't much matter; users' immediate needs can be fulfilled by choosing one or the other. Some organizations, such as sales staffs, are naturally voice dependent; others, a documen-

tation group, for example, rely more on the written word.
"The value is not in the integration, the value is in the best electron ic mail or voice mail system," says Richard A. Loveland, DEC manager of product planning in the office of product planning in the office.

of product planning in the office and information systems group. His advice is to pick a primary system, voice or electronic mail, depending on your application. Then, whenever it is applicable, integrate the other technology.

"Users won't sacrifice their primary application just to be integrated," Loveland says.



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FTS 2000

Will GSA's massive procurement sway private telecom strategies?

The U.S. General Services Administration will begin acquisition of a \$4 billion telecommunications system in late 1987. The potential effects of this procurement on market and network standards has vendors and business users buzzing.

BY EDITH HOLMES

ernard Bennington is fond of saying that if AT&T had not put an end to Telpak — its bulk private-line tariff — five years ago, the communications indus d have had to invent some

mparably catastrophic event.

The demise of Telpak caused the tab for the U.S. General Services Administration's (GSA) common-user Federal Telecommunications System (FTS) alone to rise nearly \$100 million a year, notes Bennington, GSA deputy commissioner for telecommunications

services. "Suddenly, communications caught management's attention," he says. "Telpak's death has been a great stimulus for change GSA now seeks to be the stimulus

for change with its plans to replace the aging FTS. The federal government's chief civilian procurement agency has launched the acquisition of a state-ofthe-art, long-distance telecommunications network. Dubbed FTS 2000, this procurement of 10 years' worth of voice, data and video services and a service oversight center from a single system manager will be the largest

GSA touts FTS 2000 as the means by

Holmes is a free-lance writer and litor based in Harrisburg, Pa. She which the government can use its considerable buying leverage to hasten the arrival of true, integrated teleco munications services. The agency also suggests that the FTS 2000 acquisition may serve as a prototype for major private users seeking to buy long-distance networks in the postderegulation, postdivestiture world.

"This procurement has terrific potential to push the state of the art. especially in integrated services digital networks [ISDN]," says Robert Bennis, manager of communications systems for Westinghouse Electric Co. in Pittsburgh. Further, he says that "the whole concept of a turnkey system might be very attractive to companie that don't have the resources to create networks like this on their own.

But at the same time. Bennis and other commercial users question whether this purchase of what amounts to the largest private telemunications system in the world — a network bigger than the 17 largest private networks combined - will ever apply directly to them. And they wonder whether the magnitude of what GSA is trying to accomplish will ever permit this procurement to fly.

The likely vendors for the task wo

ry about the wisdom of proceeding with an integrated network when the standards for the combination of voice, data and video over the same unications links have yet to be set and when the need to replace the current FTS is rapidly approaching the critical stage.

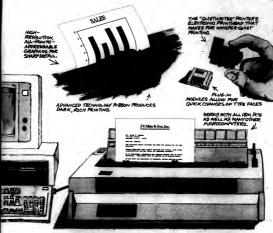
FTS and FTS 2000

The long-distance network that FTS 2000 will supersede today delivers voice and some data services to 1.3 million civilian and defense agency employees in the 50 states, Puerto Rico and the Virgin Islands. Largely analog. the system carries 1.5 billion minutes of traffic each year, 15% of which is

The FTS system has 56 major switches linked by 17,518 private backbone trunks, while another 41,000 access lines serve some 1,655 private branch exchanges (PBX) and Centrex systems, each ranging from 200 to 2,000 lines. GSA manages about 420 of these local switchboards; the rest are overseen by individual agencies

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IBM Personal Printers...The Finishing Touch

60s, the FTS system was provided entirely by AT&T until the loss of Teipak. It offers such features as a uniform dialing plan, direct station to-station dialing, on-and-off net-work calling, automatic alternate

For the past five years, GSA has introduced competition into the net-work by putting blocks of circuits up for bid and awarding them to the carriers offering the lowest prices As a result of this process, MCI Communications Corp., GTE Sprint Communications Co. — now US Sprint under a GTE-United Telecom, Inc. partnership - and several other carriers entered the federal communica tions marketplace. Bennington counts six vendors in long-distan service and 27 in-local service in the

In all, GSA estimates that PTS saved the government \$1.25 billion during the 1970s and even today rs a 12% discount over services available on the public-switched network The dougs nds more than \$420 million annu ly on the communications system GSA says it hopes to hold its costs

at this level during the next 10 years, spending more than \$4 billion on FTS 2000 between 1987, the year scheduled for contract award, and 1997. Rather than going toward circuits and switches or even a specific network architecture, however, these dollars will be paid to a prin contractor charged with delivering a set of integrated communications services to one million federal end users and a service oversight cent to GSA. The contract, an indefinite quantity service agreement, will ob-ligate GSA to purchase a minimum

No one company is en

What the government wants, Ben-nington explains, is "a one-stop tele-phone company" from the back of one PBX or Centrex system to the ck of another local switchboard GSA fully expects the prime contractor to turn to several other compa-nies to meet FTS 2000's require-ments. No single corporation — be it a communications carrier, a computer company or a systems engineering rm — can handle the task alone. The chief contractor will be GSA's

ible for network manage nt, administration and eng ing. Because GSA is not buying hardare or architecture, the agency es not plan to be involved in ciris not punit rearrangements, trazze
it rea

ed in geting into engineering ntenance," Bennington says In the decision to go with a prime

ractor."

Indeed, GSA would very much like eturn to the roles of contract inistrator and services delivery that it played in the 1970s. gton anticipates that GSA sel would run the contractor service oversight center to

error rates, blockage factors, tro rates and trouble response lead s. The agency also anticipate that the successor to PTS will make available such features as broadcast

ing and mass calling Again, "Integrated" word when discussing PTS 2000 ser vices - in no small part because GSA says it believes data will soon dominate federal communications, accounting for 50% or more of PTS

traffic between 1990 and 1992 The integration of services is the most significant way in which federal telecommunications will change as a result of PTS 2000," Bennington explains in fact this change is as. sential if the total federal work force of approximately 1.9 million - a

on that has remained cor stant for several years desnite shifts istration - is to keep pace with an ever-increasing work load,

he adds "The keys to continued productivity improvements are data processnington says. "Our goal is to bring state of the art tel

to government by 1990. To reach this goal and to main state-of-the-art o ugh the turn of the century GSA's PTS 2000 procurement re

ts call for a con upgradable system that assures ti new features and quantities will be ded at the lowest cost, Because PTS 2000 represents such a signifi cant single piece of business to the ime contractor. GSA expects pre rred-client status. Furthermore.

the agency warns potential bidders that, if, down the road, the services provided over the system do not ren sent the best value available to federal users, GSA itself will enc age other agencies to take their busi

ness elsewhere.

While GSA will leave the actual esign of FTS 2000 to the prime stractor, what the agency clearly has in mind is a software-controlled data base-driven ISDN. However Bennington stresses that - beyond the need to meet certain national security and emergency prepared ness requirements — the govern ment has no intention of asking yen dors to create facilities and services that the companies are not already planning. Indeed, he maintains, "W have said from the beginning that



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What the

government wants is 'a one-stop telephone company' from the back of one PBX or Centrex system to the back of another local switchboard. the successful bidder must piggyback PTS 2000 on an existing net-

back FTS 2000 on an existing network.
"After Telpak," Bennington adds, "we had to wait for a competitive market to form. We expected all along to do what the industry was

going to do anyway, and when the industry was ready to move forward, we announced plans for FTS 2000." Since the procurement was first announced in February 1985, half a dozen contenders for the job of FTS 2000 prime contractor have emerged

2000 prime contractor have emerged — among them, the chief incumbent FTS provider, AT&T; MCI and its newly acquired Satellite Business Systems unit; US Sprint; ITT's USTS; and Martin Marietta Corp.

"We have a commitment at the chief executive officer level from most of these firms that each intends to be the successful bidder," Bennington notes. "Our aim now is to get all of them to the table."

That may be easier said than done, judging by the reaction of the industry at large to the draft PTS 2000 request for proposals (RFP) apublished by GSA last October. According to Bennington, based on written vendor comments to the draft and subsequent meetings between GSA and the companies expressing greatest interest in the procurement, four key issues have been

draft and subsequent meetings between GSA and the companies expressing greatest interest in the procurement, four key issues have been identified.

• Risk. The vendors uniformly contend that the initial draft procurement requires them to assume too much of the risk for FTS 2000's

success
Bennington acknowledges the validity of many specific vendor concerns, noting that "the first-draft RFP provided the companies with our initial negotiating position. We expected them to dispute portions of

The vendors have already won one key point. They objected to GSA's requirement that the prime contractor adhere to a fixed-ceiling price for the 10-year life of the contract, giving up any ability to account for the return of double-digit inflation or increases in local tele-obone tariffs.

"We listened to the vendors and plan to offer another approach," Bennington says. "Basically, vendors will be asked to bear the risk of costs they can control, and we will probably bear the risk of the costs that no one can control."

one can control."

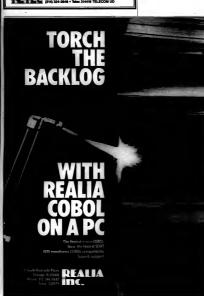
• Guarnatees and ap-frost money. Potential FTS 2000 suppliers lost
out, however, on their request for
more guarantees and, specifically,
for some initial funding. "We aren't
prepared to give on this," Benning,
ton explains. "We will guarantee
traffle for the three-year transition
period, and that ait." What that
guarantee amounts to is the cutover
of some one million FTS users to FTS

of some one million FTS users to F 2000 over the life of the project. "The way the prime contractor

can keep his revenue base is by keep ing FTS 2000 users satisfied." Bennington explains. "That's an important element in controlling the contract and its costs."

e Network Intelligence. Several vendors took insue with GSA's initial allocation of system intelligence, suggesting, in general, that more processing power belongs in the customer premises equipment than in the network itself.

Bennington indicates that GSA is flexible on this issue. He reiterates that "we tried to align what we



The timetable for FTS 2000 procurement



asked for with what the major con tenders are planning to do. We don't want them to create products and services for the government alone.

He adds that where national secu rity and emergency preparedness are

needed to meet those requirems
"We are prepared to pay for it.
• PTS-to-PTS 2000 transitio Many companies expressed conce that, as the incumbent vendor, AT&T has access to more information about addition, they are worried about

how ATAT is to be managed during the cutover process when the prime contractor takes control of the exist ing FTS and operates it while creat ing the new system. Finally, these anies want to be certain that AT&T enjoys no cost advantage that would aid its proposal to build FTS

2000 ington says he believes his igency has come up with solutions to these potential transition problems. These solutions, issues and other matters will be addressed in detail in a white paper that GSA expects to

publish in May. In general, the GSA official ex-plains, "Our chief concern is with

the technical management of the sys tem. Continuity of service is really paramount." Continuity of service is the key element GSA will look for in vendor proposals In addition to the white par

GSA will usue a second-draft RFF this August, inviting another round of comments from industry before releasing a final RFP in November Vendors are relieved to see GSA taking this sten

The first-draft RFP was not a functional set of specifications. says Jerry Gibson, director of govent systems for MCL in fact, the first-draft RFP was so flawed that it was an impossible procurement for many reasons. I believe even GSA knew that and was simply putting its finger in the wind to see

Potential FTS 2000 contractors anticipate that GSA will take some of their concerns into account in the second-draft RFP but put the odds at 50-50 that the agency will not go far

how things felt

Why does Pier 1 think the world of Zeke:



salute Zeke automated scheduling. "Zeke reduces restart errors by as much as 65%," says Production Manager Ginny Johnson, "It speeds operations. Keeps work flowing

properly.
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works better." r throughput. Fewer Zeke works for Pier 1. Why not put Zeke to wo

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sh "If PTS 2000 ever occurs and it's not at all certain that it will it will be substantially different from the original RFP," Gibson says.

In the meantime, several vendors te that the current PTS is in diffiult straits and requires a shorter erm solution than GSA's "grandi-se" network scheme. "The FTS is bsolete and expensive." says one

er PTS 2000 can be complete in time to rescue the existing system He predicts that federal users will leave the FTS in droves before the ted and probably protested no atter who wins" - is in place and any economic benefit can be derived

nat GSA is conducting its procure-ent in the middle of the industry's

Basically, vendors will be asked to bear the risk of costs they can control, and we will probably bear the risk of the costs that no one can control.

evolution toward software-defined virtual networks and ISDNs "These concepts are barely off the ground," MCI's Gibson says. knows what they'll look like in the final analysis?" Standards for

ISDNs, in particular, are months away from being set GSA officials point with pride to the fact that they involved the 10

largest users of the current FTS system in the acquisition pro the beginning. In January 1985, a month before GSA publicly announced FTS 2000, the agency formed what it calls the Committ of 10, consisting of those users who ount for two-thirds of all PTS

traffic and expenditures.

Over 50% of these agencies have signed up for the new system," Ben nington says, adding that these com-

mitments, made at the assistant sec-retary level, are binding agencywide. Among the departments that have agreed to use PTS 2000 during its initial three years are the U.S. De-partment of Health and Human Services and the Department of Agricul-

Several of the next 10 PTS users - those agencies that together ac-count for another 15% of FTS traffic and expenditures - have signed up well, according to Bennington The 52 agencies whose traffic and itures comprise the remaining

19% of FTS usage have not been contacted by GSA The Department of Defense which makes heavier use of the FTS than any civilian agency, has yet to tell GSA that the department's traf fic will be put on the new system and industry sources close to DOD say the department is not likely to take this route. They suggest that the Defense Department will stay with the FTS only if the present system is patched — quickly. The Department of the Treasury, mean while, has informed GSA that it plans to implement its own intercity telecommunications network rather

than be a part of FTS 2000. While GSA has asked the Trea sury Department "to delay making final plans . . . until a proper evalua-tion can be made of PTS 2000 services," Bennington says he applauds the department's efforts to examine options other than the GSA-spon-

We must push our users to con der their alternatives, to constantly evaluate their telecommunications estems to be sure they are getting the best service for the best price he explains. "Forcing them to do that is the key to controlling the whole FTS 2000 contract. It's the key to keeping federal com

The FTS represents less than 15% of the total cost of government communications, and we expect to maintain this percentage with FTS objectives with the FTS and FTS 2000 are to get the best prices we can

for a core of civil agencies and to for a core of civil agencies provide support for those agencies that don't have telecommunications staffs of their own Agencies will be asked to make a final commitment to FTS 2000 be-

n the months that GSA iss final DEP and makes the award to a GSA has published a regulatio viting agencies to devise alterna-

tives to the planned system and requiring those that elect to go their separate ways to show that their plans are cost-effective.

The White House Office of Man-agement and Budget (OMB), mean-while, has pushed GSA to consider

while, has pushed GSA to consider alternatives ever since the agency made its FTS 2000 plans public last year. "OMB's concern is entirely proper," Bennington saya. "The White House wanted to be sure that there had been an adequate review of our strategy before we committee

OMB and GSA led to the commissic lng of Kalba Bowen Associates, Incin Cambridge, Mass., to study FTS an independent panel of govern

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CL Section (CL Section 2006) (CR Section 2006) (

In Depth/FTS 2000

experts that will review the efforts of both GSA and the outside consulting firm.

A draft of the Kalba Bowen study recently was delivered to GSA, but its contents will not be made public until the agency has completed its review and conferred with the contractor Meanwhile, the independent panel had met once and was preparing to convene again to hear the

consultancy's conclusions.

GSA is convunced that the course it has set is best. "I see no surprises at this point," Bennington says of these two outside examinations of his agency's work.

impact on commercial users

He acknowledges that "size is the key to GSA's strategy It might not work if an agency — or a company — isn't big enough. We have no evi-

Rather than applying to the largest commercial users, GSA's turnkey concept might fit the bill for smaller firms that, like the federal government, lack the manpower and the capital to build an extensive network any other way.

dence to suggest that a department like Health and Human Services or a General Motors Corp. could create and benefit from a procurement like this." GSA has had lots of interest in PTS 2000 from large commercial us-

ers. 'They want to follow it closely,'
he says.
Westinghouse's Bennis agrees
'We anticipate some real fringe
henefits and soillover effects from

this procurement for the Westinga houses of the world."

But at the conclusion of comments the these, GSA's Bennington adds, what they tell me n, When it's successful, we want a copy of the

Skantinism

Even the largest of private telemmunications users remain skepts cal about the applicability of this massive public procurement to their future telecommunications needs because of the purchase's sheer size, says Brian Morr, a partner with the Washington, D.C., law firm of Pisher, Wayland, Cooper & Leader. "Private users are excited about PTS 2000. It's a significant buy, and

MAY 19, 1986

FTS 2000. It's a significant buy, and they will watch carefully to see what vendors offer and how they provide services. But, at a minimum, this network is 10 times bigger than anyone else's," he notes.

Moir, who represents the International Communications Association, an organization of major communications users, suggests that for 500 of the association's 600 members, most of the concept behind the FTS 2000 acquisition will not be transferable at all because of the project's mas-

"GSA won't create any new tech nology with this procurement," the lawyer predicts. "All private network users customize technology to suit their needs, and GSA can be

expected to do this, too "
Purther, while GSA wants the network delivered on a turnkey basis,
the agency also requires outside
managerial assistance from the
purme contractor.

"The trend in Industry is just the opposite," Moir points out "Companies are bringing in tolecommunications talent because they can afford to and because the addition of staff saves them money in the long run." GSA, however, is not in a position to offer the salaries to attract the peo-

ple it needs.

Bennis suggests that rather than
applying to the largest commercial
super, GSA's turnley concept might
fit the ball for smaller firms that, like
the federal government, lack the
mapower and the capital to build an
extensive network any other way.
"Britispas consortium of, say, Natrin Maretta, OTE Corp. and folim
something similar on a smaller
scale" he says.

And what of the GSA network's ability to speed the delivery of instructive Sparse says that many ISDN applications, such as full-motion videoconferencing, final ly might get off the ground with the advent of the new GSA network.

Moir agrees that "FTS 2000 migh

our even or the new GSA network.

Moir agrees that "FTS 2000 might bring about integrated services more quickly," but he asks, "Who will benefit?

"I don't see the demand now for these services that the communications systems providers do. Users want services that can be integrated but they don't necessarily want the delivered in an integrated fashion." Moir further cautions 62% again a new version of AT&Ts old slogan "The system is the solution." Vende

"The system is the solution." Vendo marketers argue that users want one-stop shopping, he says. "And I agree But they don't want one-stop shopping, period. They want onestop shopping as an option." Despite the concern users and

Despite the concern users and vendors express about the long-term impact — and even the viability of FTS 2000 — GSA's Bennington re-

"Back in the 1980s, the U.S. government was the world leader in telecommunications," he recalls. "Since then, somewhere along the way, we've lost that position. There's no reason why we can't go first-class again." For Bennington and his age: cy, first-class means FTS 2000.

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communications front-end processor such as a 3705 or equivalent, that supports ASCII terminals.



In Depth

Users tame CICS

'I am often struck by the ingenuity and the extent of changes that CICS users have made to their systems. From the perspective of user stories in the U.S. and abroad, it is not surprising to see a duplication of not only problems but solutions as well.'

By STEVE PIGGOTT

he flexibility of IBM's CICS, which many agree is the transaction processor's major strength, can create headaches for the team or individuals assigned to its installation and maintenance

It is true that IBM provides the interfaces, user exits and so on by which CICS can be transformed into a more usable product. But coding them is by no means a trivial task, and not all sites possess the necessary skills and knowledge required to accomplish this task to their complete satisfaction.

Many larger IBM MVS shops use teams of six or more systems programmers working full-time on CICS, whereas at the other end of the scale, a small VSE site will probably make only one systems programmer responsible for the upkeep of all systems software.

Piggott is editor of CICS Update, a technical journal published by Xephon Technology Transfer, Ltd., Berkshire, England. Formerly, he was a systems programmer at a large MVS installation in the UK.

designed to encourage CLCS utens to exchange views and experiences on a wide range of ClCS-related topics. I make a state of the control of the control of the control of the countries. I am often struck by the ingentity and extent of many different countries. I am often struck by the ingentity and extent of many of the changes they have made to their the control of the changes they have made to their the countries. I am often struck by a control of the changes they have made to their twe. It is not allogether surprising to see a large duplication not only of problems but also of solutions. For instance, Bolls-Roye of Clanada. For instance, Bolls-Roye of Clanada personal colores its on-line DoS DL/1 opens and closes its on-line DoS DL/1 opens and closes its on-line DoS DL/1.

As the editor of a monthly journal

in Lackine Que, ourse independently opens and closes its on-line DOS IL/1 data bases in the same way as North-error Star lifstrance Co., Gloucester, England In addition, an installation in Middlesborough, England, has developed a method of automatically signing off file terminals in very much the same way as Standadyne, Inc. in Bell-think alike. Clearly, great minds think alike.

Careful choice, critical judgmen

Because CICS users come in all shapes and sizes, IBM has to provide support for many types of terminals, as well as for different programming languages and file and telecommunications access methods. The user must carefully select the relevant options for a number of CICS control programs

and tables that form the CICS nucleus. To avoid ending up with an unnecessarily large and overweight system, good judgment in this matter can prove critical. Generating support for inappropriate functions or blindly accepting IBM defaults can have a far greater effect on performance than the user imagined.

Charles McCray of Network Computing Corp in Charlotte, NC., estimates he was able to reduce his CPU cultiration be was able to reduce his CPU willoam instructions. May be a sufficient to the control of the control of

IBM does not always have its customers' best interests at heart when it



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designs systems software. For example, Melvyn Maitz, a systems programmer in the UK, points out that residency can be forced on some programs in the Processing Program Table (PPT) that have been generated using the group macro, although re is no good design reason for this to hap

He cites two of the programs that form the CICS Enhanced Master Terminal (CEMT) transaction as Enfances mance: Items programs can be made a good example. These programs can be made nonresident, with a possible saving of 50K bytes for CICS 1.6 users, by coding the following entries

in the PPT in the order they are shown DPHPPT TYPE = ENTRY.PROGRAM = DPHEMTD.RES = NO DPHPPT TYPE = ENTRY.PROGRAM = DPHEMTD.RES = NO DPHPPT TYPE = GROUP, PN = OPERATORS

In another instance, closing down CICS is not lways the straightforward procedure it should be. End users, oblivious to the finer workings of CICS, might simply turn their screens off when they want to go home. Often they are still signed on; sometimes they are in the middle of a transation. Some installations, faced with this situation resort to the rather messy and time-consuming solution of performing an immediate shutdown wed by an emergency restart in order to tidy

ings up. David Warner, chief systems programmer at Britvic Ltd. in Chelmsford, England, has devel-oped a transaction to display and alter the stat of terminals at hus installation. Because of the transaction's greater functionality compared with the CEMT transaction, particularly in the way it handles pseudoconversational tasks, the transi-tion is used effectively to ensure a smooth and doconversational tasks, the transac orderly shutdown. An operator can easily tell what end users are still signed on at which terminal and what they are doing prior to terminating

The Irish Dairy Board in Dublin was faced with similar problems. Its programs are developed us ing an application generator and as a result make

The user must carefully select the relevant options for a number of CICS control ograms and tables that form the CICS nucleus. Generating support for inappropriate functions or blindly accepting IBM defaults can have a far greater effect on performance than the user imagined.

use of conversational techniques The dairy board has written a program, a entry for which is included in the Program List Table with those programs executed during the first quiescent phase of shutdown. The program determines all outstanding nonsystem tasks and invokes the master terminal Purge function for them. If this fails, the program invokes the more

effective but cruder Force Purse function

At least one UK site has completely automated not only CICS shutdown but also the nightive backups of its on-line files and the subsequen restarting of CICS. This site is able to provide its end users with the CICS availability they require and still perform all the necessary housekeeping without incurring the expense of providing a third

CICS is shut down in a way similar to the thods described above, by the site's own use written program that is triggered via interval control sometime after midnight. The site, a VSE ite, has written another program that rei jobs from the VSE/Power queue via the Ctispool

macro. This program is invoked twice, first at the end of the CICS job stream and then after the harkun ich stream, when it releases the CICS

In addition, the site uses a feature provided by the Macro 4 PLC product Logout, which enables the site to define the automatic replies to some of the console messages it is likely to receive during cessing of the backups or CICS start-up. CEMT is a powerful transaction and is, qu

rightiy, restricted in most organizations to only a few qualified personnel, usually technical support or operations staff. Some sites, however, see benefits in extending certain of CEMT's facil other staff members. Unfortunately, IBM does not provide a limited-function version of CEMT: users are authorized to use either all or none of its facilities Graham Payne, a UK systems programs

written a program to allow the applications pro-grammers at this installation to use just the NEW-COPY facility of CEMT, while Robert Arkis, a member of technical support at Butler Interna-tional, Inc. in Montvale, N.J., allows programmers to use the inquiry functions of CEMT without the ability to change anything. Both of these changes are accome shed by invoking the master terminal program, DFHEMTA, through their own user-writ-

Transaction dumps are normally produced whenever a task abends. These dumps are written to the dump data set until it becomes full. Depending on the release of CICS being used and other options selected, the dump data set either switches to another data set or ceases to be written to.

Notification that an abend has taken place is sent to the end user's screen and to the transient data queue CSMT, which is typically assigned to the system printer and printed when CICS is shul n. This situation is far removed from what most users want and has led many of them to



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Software that interfaces with IBM's VSE/Power queue appears to be very popular. IBM provides all that is necessary to link CICS and VSE/Power. But in the absence of good examples, attempts to implement such an interface can result in a dismal, if not spectacular, failure.

develop their own refinements in this area. Several users send a message to the operator's console or some other terminal in the event of a program abend, thus making sure someone spart from the end user is aware that an error situation has occurred. This is most commonly done by replacing the IBM-supplied dummy program error pro-gram DFHPEP with user-

DFHPEP gains control af-

ter any program abend, and extract the relevant informa tion concerning the abend and to write it out to the tively, there is a global exit supplied that is given control before any transient data request. This can be used to trap messages about to be routed to CSMT and to send all or some of them to the console or any additional or

Not all the transaction

dumps will need to be printed, especially in a testing environment. A faulty transaction may abend several times and produce multiple transaction dumps, although only one dump is needed to debu the problem. Jimmy Edgar. technical support manager with American Heritage Life Insurance Co. in Jacksonville, Fla., has written a program that selectively prints dumps from the dump data set. Selection of dumps to be printed can be based on task identifier or abend code as well as date and time crite-

has been implemented by Terry Callaghan, CICS spe cialist at Midland Bank PLC in Sheffield, England. Calla ghan has developed a pro gram that automatically prints the dump data set im distely after it has been written to. He had made a one-line change to the IBM modules that write the dump data set. DFHDCP and DFHFDP, to start his program via interval control With SYSOUT defined as held output, full TSO/ISPF Browse facilities can be used to provide a very helpful on line debugging capability

The statistics question

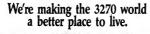
A common concern of many CICS users is obtain CICS statistics in a form they can use easily and efficiently to help them pinpoint both existing and potential prob lems. As we have already seen, much of the informa tion about CICS statistics is not evailable until the and of

the day. For sites with big DP bud ets, the answer is to ins one of the many third-party software packages that ad-dress this problem. Candle Corp.'s Omegamon/CICS and Landmark Systems' The Monitor appear to be at the top of the range both in price. Nevertheless, several of their competitors represent very good value for the money, particularly those of fering job accounting and historical reporting capabili

> IBM's offering, CIC-SPARS, has a significant number of users, although their enthusiasm for the product comes across as lit-tle more than lukewarm. Support for the unwieldy IBM's PAII has been with-CICS/0S/VS

Many CICS users have written their own software in order to help them look at ost frequently used process tvolves extracting informa-on from one of the various ting the data and then dis-playing the information on

interest are those relating to the principal CICS tables —





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In Depth/CICS

the Program Control Table, the Processing Program Ta-ble, the File Control Table and the Terminal Control Table Each contains useful status information and cumula tive statistical data for each

of its table entries. Several users have gone a stage further in extracting statistics from the different DL/I control blocks and displaying them on a terminal Some of them have congathering statistical infor ation on the usage of the

DL/1 buffer pools.

Software that interfaces with IBM's VSE/Power queue appears to be very popular. IBM provides all that is necessary to link CICS and VSE/Power. But in the absence of good examples, attempts to implement such an interface can result in a mal, if not spectacular, failure (as an ex-systems programmer, I can vouch for this from painful experi-

David Green, a se grammer formerly of Eastern Counties Newspapers in Nor-wich, England, has written a transaction that writes card image records to temporary storage. These card images are then read by a PL/I pro ım, which in turn links to an assembler routine that writes them to the VSE/Power reader queue using the Putspool macro. Steve Lovett, a systems support ma ager from Smyrna, Tenn., does a similar thing at his makes use of the communica tions area to pass data from a program that builds the job stream to his routine that puts it to the VSE/Power

Printing from the VSE/ Printing from the vols/ Power queue is not so easy because of the higher degree of error recovery needed. when dealing with terminal printers. John Ellerslie, a UK er, has developed his own transaction as an alternative to purchas-ing a package from a third-party supplier. He does, however, describe his code, which uses the Getspool macro, as "cheap and cheer-

The Global Exis facility, streduced in CICS 1.5, holds any advantages over the revious static user exits. Iobal exits do not require generating CIGS control regrams to install them or make amendments. Two or ore global exis programs ay run at the same exit, or exits, and or more exits.

function keys 13 to 24 equivat to keys OI to I2. Sec ond, he turns the terminal option for uppercase transla-tion on and off, depending on the transaction identifier be-

the transaction identifier or-ing used.

Terminal users switch from traditional applica-tions, which require the up-percase translation option to be on, to text processing aplications, where upper- and wercase data needs to be stered, regardless of at high terminal they are lo-

cated. Many sites use global exits to compress their data

The articles our journal publishes represent the hard-earned lessons of CICS users throughout the world. Some come from installations r richer in CICS function than even IBM could imagine. Others originate in sites with limited resources strug

performance or functionality not provided by the basic

I have found that reader interest concentrates mainly on the practical solutions that have been developed by their fellow CICS users Some sites will come up with good ideas that they are un-able to implement because they lack the experience or understanding needed to make them work. Others are od ideas that they are un-

unaware of the facilities th are available to help them

enhance their CICS systems, or they do not know how to use these facilities properly What appears to the experienced CICS specialist to be a trivial change can repre sent several months' re-search and effort to the poor soul not so well versed in

CICS terminals. As one U.S. contributo sted, "One man's garbage is another man's treasure" - : sentiment with which many heartedly agree.



If you buy a TI 855 printer now, you won't have to upgrade to one later.

on't tack just any printer on you w PC for now, thinking that you t what you really need inter. Sea th, the best, a TI 855 or TI 865 inter. That way you can put the any you'd have apent on a need 1 upgrade on news

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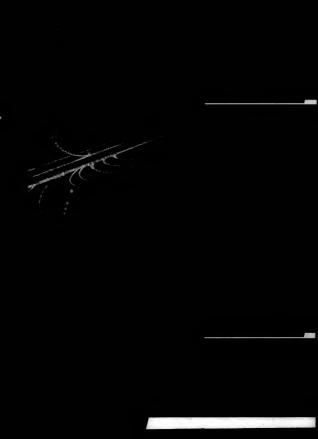
are among the easiest to use, you can utilize all the capabilities built into your PC and activare right from the start. Instead of sometime later. You even have a choice of over 30

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and services for you.



NEW PRODUCTS

Cambridge add-on gets key features

The Cambridge Software Collaborative of Cambridge, Mass., has added three key features to its Cambridge Spreadsheek Analyst add-on program for Lotus Development Corp.'s 1-2-3 and Symphony packages and dropped the price from \$149 to

9.95. Working with 1-2-3 and Symphony, the Analyst checks spres rors and provides logic analysis and com-plete documentation. Enhancements in Version 2 of the Analyst include an automatic scan function that checks for more than two dozen types of errors (twice as many as Version 1.2), added report selections and an open-ended design that accepts add-on programs developed by the

Cambridge Software Collaborative The scan function highlights such er-rors as unprotected formulas in protected work sheets; formulas with questionable nces to labels, numbers, string formulas and blank cells; the absence of refer-ences to numeric cells; and unreferenced

or overlapping named ranges.
New documentation features a dias tics report of the scan results, a settings report that delineates the global defaults and settings information for the work shows a condensed view of the entire work

The first add-on program available for the Analyst is the \$49.96 Macro Analysis which documents all macro or mands in a spreadsheet According to the Cambridge Software

Collaborative, the menu-driven Analyst operates like an extension to the Lotus spreadsheets, is compatible with 1-2-3 Version 2 and Symphony Version 1.1 and supports the Intel/Lotus/Microsoft Exded Memory Specification

Registered owners of Analyst Version 1.2 may upgrade for free and will also re-ceive a free copy of the Macro Analysis Module. Owners of previous versions of the Analyst may upgrade to the new ver-

MAPICS II packages bow

Two utilities also to debut at no charge to customers

IBM recently introduced three application packages for its System/38 Manufacturing Accounting and Production Information Control System (MAPICS) II The vendor also added two feat

software line. allable next month, to MAPICS II that will be offered to customers at no charge

The first software package is Master roduction Schedule Planning (MPSP), which was designed for planning of pro duction schedules, resources and master scheduling. The software can generate resource profiles to help create and verify he production plans and master schedule It has a one-time fee of \$13,230 or a monthly fee of \$660.

With the announcement of this p IBM said it has modified its MAPICS II Material Requirements Planning package to work in conjunction with MPSP. The modi-

IBM unveils

Proprinter XL

wide-paper desktop printer for its Pers al Computer line that features an opera

users to key in print commands for print

ty. A user can press one button to switch from draft-quality to near-letter-quality

print or press a combination of keys to switch to boldface type or change the

The Proprinter XL is available now

ality as well as character size and quali

panel for users to key in print con

print lines up to 13 6-in. long The three-button operator panel allows

fied version will be available prior to the

release of MPSP and is required to use The Financial Analysis package is a supplement to the MAPICS II General Ledger, providing more financial reporting and analysis features, such as automatic

journal entries and budget preparation. The package sells for \$345 per month or can be purchased for a one-time charge of

The Forecasting package can generate eekly or mouthly forecasts based on his torical data. It costs \$12,650 on a one-time is or \$630 per month.

The no-cost, added feat Il include the Multiple Job Queue Support, which allows users to process more than one MAPICS II batch job at a time, and the User Created Menus, which allows users to customize menu screens.

The applications packages will be re-leased in late June, according to IBM. Users must have MAPICS II IMSF and MA-PICS II Cross Application Support software to run these packages.

INSIDE

& Services/84

Communications/101 Reductions/106

Rvan-McFarland

Ryan-NeFarland Corp. of Rolling Hills Estates, Calif., has announced RM/Infoex-press for IBM PC Network environments. anges. The Proprinter XL, which sells for \$799, was designed for wide-paper print-outs, such as spreadsheets. It accommo-dates paper up to 1616-in. wide and will

RM/Cobol-8X is an ANSI 1974 Cobol impiler with ANSI 1985 Cobol features and IBM VS Cobol extensions. It supports virtually unlimited program size.
Infoexpress, \$595, operates with IBM's

software speeds up multiuser networks

RM/Infoexpress is a software add-on to RM/Cobol-8X. According to the vendor, it allows multiuser applications to execute an average of 10 times faster on a network with five users, with no source or object

PC Network, Token-Ring and any network with either PC-DOS or Microsoft Corp. MS-DOS 3.10, the IBM PC Network Program and 100% Nathing compatibility

Twenty Four Reasons Why More Than 350 CICS Users Have Chosen SYSM Electronic Mail Over The Competition!

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Bose, Idaho 83711-4785



HAW COMPUTER SYSTEMS INTERNATIONAL

SOFTWARE

& SERVICES Systems software

McDonnell Douglas Computer Systems Co. has announced the Re-ality Integrated Office System, a software package for its relational

data base management system mini-The package integrates function och as word processing, spread-seets and graphics. It also offers ectronic mail and the ability for a

personal computer running under Mi-crosoft Corp.'s MS-DOS to access the system's data base. In addition, the package consists of a variety of subsystems, including telephone numbers and addresses, a desk diary, electronic indexing, calculator, teleconferencing, activity management and data base manageent for personal data bases

The Reality Integrated Office costs \$1,000 to \$1,500, depending on the minicomputer system involved. McDonnell Douglas, 17481 Red Hill Ave., Irvine, Calif. 92714.

Software Techniques, Inc. has in-troduced Diskit/VMS, system soft-ware for Digital Equipment Corp.'s

VAX comp Diskit/VMS is said to include utili-ties designed to help solve performance problems caused by disk frag-According to the vendor, the soft ware also improves disk access speed by positioning both directories and frequently used files and optimizing

Other features of Diskit/VMS in clude a directory management too

and a dynamic process monitor that displays information on files opened by any combination of file character-

Diskit/VMS is priced at \$4,500, with additional CPUs costing \$3,500. Software Techniques, 6600 Kstells Ave., Cypress, Calif. 90630.

Britz Publishing, Inc. has an sunced Recon/34/36, a bank recon

ciliation system for the IBM System/ 34 and 36 family of computers The program was designed to maintain information about bank

checking account activity. According to the vendor, it can keep an accurate balance for a check-

ing account or keep track of out-Entries are allowed for issued

checks, paid checks, voided checks, service charges, deblt memos, credit memos and interest earned. Recon/34/36 can keep track of up to 999 bank accounts for 999 compa

Recon/34/36 costs \$99, including complete RPG source code.

Britz Publishing, 1814 Capital re Jackson M

Digital Equipment Corp. has an-sunced VAX Valu Version 2. VAX Valu works with DEC's VAX

VTX distributed videotex system. It is a line of development tools VAX Valu Version 2 is said to sim plify the development of distributed videotex applications, provide in-creased capabilities for multivendor

videotex systems and enable applica tions developers to develop tra tional videotex applications. VAX Valu is priced at \$8,160 for the Microvax II, \$21,200 for the VAX 8200 and 8300, \$27,200 for the VAX 8500 and 8600 and \$40,800 for the VAX 8800.

DEC. Maynard, Mass. 01754

Applications packages

Northeast Data Systems, Inc. has introduced Intrepid MMS, a closed-loop Manufacturing Resource Planning II management software pack-age, and Intrepid DMS, a distribuent software system.

tion management software system. Intrepid MMS is said to allow us to anticipate material shortages and capacity bottlenecks and to respond to changes in priority. It features an interactive data base that connects all departments. It was designed to run on all systems with Pick Systems'

Intrepid DMS is said to integrate phases of the distribution process inphases of the distribution process us-cluding customer service, order tracking, inventory and price con-trols. It also features an on-line data base. It was designed to run on all systems with Prime Computer, Inc. Information or Pick operating sys-

Both Intrepid MMS and Intrepid DMS are priced at \$3,000 to \$15,000

per module. Northeast Data Systems, 20 A St., Burlington, Mass 01803

Lawson Associates, Inc. has an-nounced a Security Module and an Employee Expense Module for IBM 3000 and 4300 mainframe users. The Security Module is said to se

cure screens and specific functions within a program. It offers four options: program security, company and process level security, group security and no security. It integrates with all Lawson business management and operational software. The Employee Expense Module works in conjunction with the ven-

dor's Pinstripe accounts payable It allows users to match employ It allows users to match employee expenses with advances, track expense reports and advances, create statements for employee records and keep employee expense checks separate from vesidor checks.

The modules cost \$6,000 cach.



NEW PRODUCTS/SOFTWARE & SERVICES

Utilities

1ST Sales has introdu +, an on-line software product for CICS environments.

Access+ is said to allow users to quest information from a mainframe computer and receive respons-es on a CRT screen or in printed reports. Data from one or multiple files can be located and displayed in flexible formats. Arithmetic operations can be performed on the data, which can be presented in detail or in sum-

ss+ operates in both IBM OS and DOS environments and supports any VSAM structure. A DOS site II-

ense costs \$16,000, and an OS site Il-cense costs \$24,000. IST Sales, Suite 240, 2022 Powers Ferry Road, Atlanta, Ga. 30339.

Gejac, Inc. has ported Version 3 of its SRP Software Performance Monitor to Digital Equipment Corp.'s PDP-11 computers using the RSX-11M Version 4.2 as well as the RSX-11M version 5 features the video SRP Version 3 features the video

display task, which provides the ability to display real-time bar graphs that show the amount of acgraphs that show the amount of ac-tivity on the computer system at that time, and Secondary Pool Monitoring, which provides RSX-11M+ users the ability to monitor and report on sec-ondary pool-usage statistics in addi-tion to reinance once

on to primary ones. SRF can be licensed for \$3,995 Gejac, P. Md. 20737. P.O. Box 188, Riverdale,

Talaris Systems, Inc. has an-nounced Version 2 of its Quirive text and graphics integration software

package package.

New features of Qdrive Version 2 include an all-parameters-displayed menu, an option that permits a user to put more than one page image on one physical page, the ability to scale and center embedded raster graphics and a log file-for capturing Qdrive

messages.
Qdrive Version 2 for the Digital
Equipment Corp. VAX/VMS operating system is priced at \$5,900.
Talaris Systems, P.O. Box 26580,
5160 Carroll Canyon Road, San Diego, Calif. 92126.

a, a version of its Ada con tools for Digital Equipme VAX systems

The package consists of a cor written in Ada and such compo as a library manager, library to and an Ada execution environs Telegen 2 was designed for the de ent of Ada apr

in support progra 50,000 lines of code. up New optional tools include a surce-level debugger, global opti-izer and language productivity

\$35,000 depending on the VAX mod-

el.

The optional tools can be purchased separately or packaged as the Host Development System for a cost of \$26,000 for the VAX-11/780 and \$53,000 for the VAX 8800, according

erling Software, Dylakor Divi-has announced Version 4 of its ion has announced

nainframe auditing utility, Dyl-Andit CMS The software is said to incorporate the auditing technique known as dollar-unit sau

r-unit sampling. Version 4 also is said to support 12 ditional Systems Management Fa-ity, MF1 and Resource Manage-

Facility records for IBM OS us-

Dyl-Audit CMS is priced at \$21,800. The software runs on IBM 370, 3000 series and 4300 series main-frame computers under VM/CMS. Sterling Software, Dylakor Divi-

Relational Technology, Inc. has announced ESQL/Ada, an Ingres gram interface to the Ada lan-

ESQL/Ada contains an Ada pressor that allows Ada programrocessor that allows Ada program-ers to integrate Ada source code ith the SQL data base language and orms control of the company's In-res relational data base and applica-on development system.

The Ada preprocessor will work with any Ada language compiler im-plemented for VAX/VMS. Unix or

VM/CMS environments. The preprosor for the VAX/VMS Ada compiler costs \$5,000. Relational Technology, P.O. Box

Telesoft, 19639 Roselle St., San sion, 17418 Chatsworth St., Granada 4006, 1980 Marins Village Pkwy., Al-Diego, Calif. 92121. Hills. Calif. 91344. ameda. Calif. 94501 ameda, Calif. 94501.

CMA Data A/8 has introduced CMA-Spool, software said to let re-mote sites or departmental users con-trol their own IBM 3270 printers. The software was d 3270 VTAM print networks in MVS and MVS/XA installations. It sup-ports TSO, IMS/DC, CICS and Soft-ware AG of North America, Inc.'s

Complete under one spooling system. Features include the ability to ute spool files to another prin and requeue processed spool files for reprinting

reprinting.
CMA-Spool costs \$11,000.
CMA Data A/S, c/o Symark International, 31600 Rustic Oak Drive,
Westlake Village, Calif. 91361.

Talk

General Dynamics

Rockwell International

Northwestern Rell Procter & Gamble

Canadian Pacific

Lireman's Fund

Bankers Life

Irving Trust

Wisconsin Department

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NEW PRODUCTS/SOFTWARE & SERVICES

secert, an interactive pro-m for testing the usability of magnetic tapes at differ-

Tapecert is said to allow the user to select the tape density, the test pattern to use, the number of allowed retries and whether to allow

extended interrecord gaps to skin past had snots on the The program displays system error messages and re-cord count information, with totals every 1,000 blocks.

Command procedures can be set up with defaults for difat types of certification

Fortran 77 source code is vailable for \$400. Cosmic, The University of Georgia, Athens, Ga. 30602.

Pelorus Equipment, Inc. nas enhanced its P3423K dis-

tte subsystem. The subsystem comes with the vendor's Diskutil software and now provides both read and write capabilities for IBM formatted 8-in. diskettes on any model of the Hewlett-Packard Co. HP 3000 family of computers.

The subsystem utilizes two RS-232C ports. The P3423K diskette substem costs \$6,000. It can be nted for \$600 per month. Pelorus Equipment, S. Wil-m Road, Bedford, Mass.

has announced Release 5.2 of JCLcheck and Release 4 of the Prodict program. JCLcheck is a utility that

is said to detect and diagnose all job control language errors before a program is sub-mitted for test or production runs

Added features include graphics flowcharts, auto-matic extraction of procedure library information and Cobol exit enhancements, the

Prodict maintains an online dictionary of all protion jobs, job networks, data sets, programs and cataloged

New features of Prodict include easier access to dictionary information for IBM ISPF users. Both programs run under the OS/VS operating system.

JCLeheck also supports VM/ CMS and MVS/XA. JCLeheck costs \$17,825. Prodict costs Triangle Software, Suite 5, 4340 Stevens Creek Blvd., San Jose, Calif. 95129.

Training software

Intelligenceware, Inc. has announced Experteach-II, an expert system product for the IBM Personal Computer.

Experteach-II is a guide to expert system technology

consisting of a collection of Los Angeles, Calif. 90045. tutorials, case studies, online and interactive teaching programs, building tools

tions, Inc. has released eraion A.02.03 of its Imtems and artificial intellince languages. age/3000: Principles and limities module of the Users can build their own Utilities module Teachme/3000 expert systems and expericomputerbased training series.

ent with a variety of tools and languages, according to The series runs on Hew-ett-Packard Co. HP 3000 Experteach-11 is priced at

The Image/3000 module 730, 9800 S. Sepulveda Blvd., has been enhanced to include

material on HP's Turboimage data base management sys-

The enhanced module will be distributed free to curr users of the Teachme/3000 Image module The price of the m for new users is \$750

The module and the Teachme driver program combined can be purchased for \$1.750

Innovative Software Solu-tions, 10705 Colton St., Fair-fax, Va. 22032.

Innovative Software So-intions, Inc. has added Get-ting Started with Dictio-nary/8000: Part 2 to its Teachme/3000 series of com puter-based training modules for the Hewlett-Packard Co.

The module, intended as a complement to the Getting Started with Dictionary/ 3000 module, was designed for users with little or no experience with Dictionary/

The module costs \$900.

An IBM Color Display.

It can really boost an operator's efficiency. That's what REJIS found out, REJIS is the Regional Justice Information Service in St. Louis. This information service is a

trendsetting, government criminal justice network linking 120 different agencies to a central computer.

REJIS quietly initiated a pilot program using IBM 3179 Color Displays. The units were tested under everyday conditions. Default colors were used, so no software changes had to be made. The quiet test turned into a smashing success. End users were amazed to see

how data popped and how mistakes

The module and the Teachme driver program combined cost \$1,900. The price of both Dictionary modules combined with

the Teachme driver is \$2,900. Innovative Software Solutions, 10705 Colton St., Fairfax, Va. 22032.

Services

Data General Corp. has recently introduced the Data General On-line Information Service (OIS).

Operating over the Compuserve, Inc. network, the system is available for all users of Data General computers in the U.S. and Canado to \$70 per hour for down-to \$70 per hour for down-to-state \$10 per hour for

day.

Users can gain access to 12 independent hardware and software vendors from whom they can obtain technical information or soft-

ware patches to overcome known bugs. p They may also submit spe-

ers in the U.S. and Canada
and can be dialed 24 hours a
day.

Users can gain access to 12

Users can gain access to 12

undependent hardware and
Independent hardware and Independent hardware and Independent hardware and Independent hardware and Independent hardware and Independent hardware and Independent hardware and I

Pees are incurred only when a specific service is used, a Data General spokesman said. Data General, 4400 Computer Drive, Westboro, Mass.

MICROS

Systems

Bondwell has introduced the Bondwell 8, a lap-sized

IBM-compatible portable computer. The Bondwell 8 features 512K bytes of random access memory, a built-in, 3%-in, 720K-byte floppy disk drive and 80-col. by 25-line backlit LCD graphics display. It also includes a rechargeable bat-

tery, red-green-blue and composite video outputs, RS-232C serial port, Centronics Data Computer Corp. printer port, 300 bit/sec. modem and

port, 300 bit/sec. modem and Microsoft Corp. MS-DOS and GW-Basic software. The Bondwell 8 reportedly will run IBM-compatible software, including Lotus Development Corp.'s 1-2-3 and

Symphony. The Bondwell 8 costs \$1,595. Bondwell, #10 3300 Seldon Court, Fremont, Calif.

04530

Panasonic Industrial Co. has announced the Business Partner IBM Personal Computer-computible computer and the Business Partner

puter-compatible computer and the Business Partner 256, an IBM Personal Computer AT compatible. Business Partner includes six open expansion slots. It offers switch-selectable 4.77-

offers switch-selectable 4.77to 7.16-MHz speed and includes 256K bytes of randomaccess memory (RAM). Business Partner 286 offers 10 expansion slots, two hard disk drives and two

floppy drives. It has 512K bytes of RAM. Business Partner costs \$1,295 with a 554-in., 360K. byte floppy disk drive and \$1,495 with two disk drives. Business Partner 286 costs \$2,796 with a 514-in., 1.2M byte floppy disk drive and \$2,996 with two drives.

\$2,995 with two drives. Panasonic, One Panason Way, Secaucus, N.J. 07094.

Unbound, Inc. has announced new versions of its Qube transportable Digital Equipment Corp. Q-bus-compatible computer.

The Qube family starts with the Ql Master Module, including four Q-bas quad stots, a 22M- or 44M-byte disk and either a dual RX50 floppy or 44-m, carridge tape device. It can be expanded with four additional Q-bus slots and peripheral mounting space for two additional 54-in. disk or carridge tape

Prices range from \$6,995 to \$19,195.

Unbound, 15239 Springdale St., Huntington Beach, Calif. 92649.

Bendwell has upgraded both its Bendwell 18 transportable computer and its Bendwell 36 IBM-compatible

desktop personal computer.
The new Bondwell 18 features 640K bytes of randomaccess memory, two 54-in.
Roppy disk drives, built-in 9in. amber monitor, built-in color graphics, serial and
parallel ports, batterybacked real-time clock and
Microsoft Corp. MS-DOS and
Microsoft Corp. MS-DOS and

GW-Basic.
The Bondwell 36 now fea-

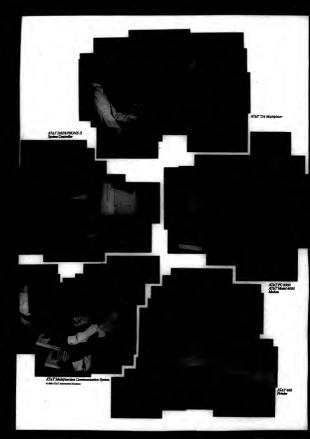
were easier to catch.

Soon, REJIS end users everywhere wanted IBM 3179 Color Displays. The result—IBM color displays are now being placed throughout the REJIS network.

Whether you have a small departmental system or a large computer, there's a range of IBM color displays and color graphic displays that could help enhance your network's efficiency.

For your free demonstration diskette, "Why Color," call 1800 IBM-2468, Ext. BT/90. Or contact your IBM marketing

IBM marketing representative. Call today.



How AT&T's unrivaled strength in communications helps you build a better information network.

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Here's what it means to you.

Performance you can rely on. AT&T is the only company that offers you complete management of digital, analog and private line networks with *one* system—the evolving DATAPHONE' II system product line.

It's a full line of modems, Data Service Units and multiplexers that combine network managing and diagnostic capabilities to deliver maximum uptime from an integrated system.

The mainframe connection. When you're in the 3270 environment, the AT&T 6500 Multifunction Communication System makes a lot of sense. Full compatibility, access to multiple synchronous or asynchronous hosts, plus powerful multitasking, put maximum mainframe muscle on the desktor.

AT&T 3B Computers working with our BSCSNA connectivity software give you departmental processing of mainframe data.

We make the pieces fit. Flexibility and adaptability set AT&T networks apart in both local and departmental use. Systems like the AT&T STARLAN NETWORK and 3B NET give you the network best suited to corporate requirements with no sacrifice in control of your computer resources.

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And thanks to UNIX System V, the entire AT&T 3B Computer family offers integrated and flexible communications for departmental computing solutions.

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System V-based computers are compatible
within the line. And beyond that, AT&T
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NEW PRODUCTS/MICROCOMPLITERS

Continued from page 87 tures a 20M-byte hard disk drive instead of the original 10M-byte hard drive. 10M-byte hard drive.
The Bondwell 18 is priced at \$1,295, and the Bondwell 36 costs \$1,500.
Bondwell, #10 3300 Scidon Court, Fremont, Calif.

has unveiled the 6AT/20 and the 6AT/40, two IBM Personthe GAT/40, two IBM Person-al Computer AT-compatible workstations that reportedly can function as stand-alone units or as fully integrated system terminals for Tandem

enstop systems. The 6AT/20 has a 20M byte internal hard disk drive; the 6AT/40 has a 40M-byte internal hard disk drive. internal hard disk drive.

Both are expandable to

80M bytes of disk storage
and IIM bytes of random-access memory. They come
standard with Microsoft.

Corp.'s MS-DOS 3.1, eight
IBM PC AT-compatible op-M PC AT-compatible op-m slots and a detachable

keyboard.
The 6AT/20 costs \$3,995, and the 6AT/40 costs \$4,495.
Tandem Computers, 19333
Valleo Pkwy., Cupertino, Calif. 95014.

PC's Limited has intro-duced the Executivetwin, a system said to allow two us-system said to allow two us-computer to share functions. Two users can simulta-neously share the system's CPU, peripherals and pre-file security through 6d lev-els of password, file locking and electronic mail. The system consists of an The system consists of an electronic mail.

ble, monitor and an IBM-com-patible keyboard. Executivetwin costs \$495. PC's Limited, Building 3, 1611 Headway Circle, Aus-tin, Texas 78754.

Had a pro 1.1.

According to the vendor, the program will create programmable read-only memo-ry (PROM) and general-pur-rose labels. Labelmaker allows the user to define la-bel type and size from a stock

IBM Personal Computer or compatible using Microsoft Corp. MS-DOS 2. Labelmaker coate 4.4

International Microsys-ms. 11554 C Ave., Auburn,

s have an-Marketing Your t, a data software wage said to offer market a as well as software for

rank target markets based on demographie and socioeconomic criteria and select advertising targets and test markets.

The package costs \$950. Market Statistics, 633 Third Ave., New York, N.Y.

its Hour

The software was signed to determine the hourly rates that should be charged for cost/work centers. It calculates labor, machine value, rent, heat, insurance, depreciation, light, power, fringe benfits, super-vision, taxes, direct supplies,

more.
Hourly Rate Budgeting is priced at \$995.
Printers Software, 1395.



Co

to ha havino

lt's unfair No matter how many copies of a top vare program you buy for ration, you're forced to pay

aprice. A high price. For every copy. Well, now you don't have to take it

more, intro-ing the Com-

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OMPUTER SSOCIATES



Compared to the property of th



The TeleVideo 905 terminal. What a difference \$10 makes.



Let's face it: there are a lot of \$399 terminals being sold these days. You get a basic box, a few tacked-on bells and whistles and not a whole lot more But now there's the

TeleVideo* 905, At \$409.

TELEVEDED HOS VS. WYSE WY-30 .		
PRATURES	SCE.	MA20 -
Individual Control logical Con	-	
Tit and prival	₩ 3	760
High control oper dut blas scales screen	y.=	No
Wedler sole		No
Policies 1, 26 m/s	gre 🕶 🖰	E 16.3

it has a feature set so powerful, your cusiomers will think they're sitting at an expensive workstation.

For example, there's a

sleekly designed mon-itor case with full tilt and swivel.

A full-size keyboard with sculptured keycaps for smooth, comfortable

typing. Sixteen nonvolatile, programmable function keys. Key-switches that have been ested to 100,000,000 strokes. Even an enhanced numeric keypad.

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rdson [2]4] 680-9700 MASHE-NATEC, INC. Sante (206) 575-1470 YNAMIC SYSTEMS ORTHWEST heo(206) 745-5311 AVA DATA SERVICES

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TeleVideo* le for more.

NEW PRODUCTS/MICROCOMPUTERS

nshare, Inc. has announced the rant Tracking System for its Applicant and Profiles/PC hus s infor mation system for the IBM Pers

Applicant tracking was design to help companies fill job positions, respond to job applicants, generate

vernment reports and cre nized report formats. ecific features include skills hing, automatic letter generation and predefined reports.

Applicant Tracking costs \$3,200 or \$2,100 for companies with Profiles/PC Employees Recordkeeping.

Comshare, P.O. Box 1588, 3001 S. State St., Ann Arbor, Mich. 48106.

Polaris Software has announced Polaris Forms software for creating om business forms that supp ewlett-Packard Co. Laserjet and La seriet Plus functions

security rats functions.

Polaris Forms is said to allow users to design or update forms with text, graphics and shading positioned within 0.001 in. The program can merge form information from a variety of sources and lets users choose om several different ways to fill

out forms.
Other features include automat me, date and numbering functions. Polaris Forms runs on the IBM Per

costs \$149 Polaris, Suite 205, 310 Via Vers Cruz, San Marcos, Calif. 92069.

Computer Business Consultants, Inc. has introduced Little Blue, a text editor for the IBM Personal Conster, Personal Computer XT, AT

Little Blue offers text formating functions such as margins, tabs, paragraph indenting and right justi-fication; a set feature to block text; file append; a jump command for moving to a section of text; search and-replace functions; support for subdirectories; and one-step printing

Little Blue is priced at \$49.95. Computer Business Consultants, site 325, 20121 Ventura Bivd. Woodland Hills, Calif. 91364

Handle Technologies, Inc. has ported its Unix-based of fice automa-tion software, including Handle Calc and Handle Writer/Spell, to the Santa Cruz Operation, Inc. Xenix V ope

ating syst Both packages share a comext-sensitive, soft-key-driven interface and document data base Prices start at \$395 for Handle Writer/Spell and \$295 for Handle

Handle Technologies, Suite 900, 7500 San Pelipe, Houston, Texas 77063.

The Software Resource Group has added Outline to its Brown Bag Outline is an outli e with the IBM Perso nal Comp ables. It is a writing tool edly helps organize and data for documents. and compa

data for s, rep It can autom atically non Outline costs \$89.95.

The Software Resource Group, 2105 S. Bascom, Campbell, Calif.

LBMS, Inc. has announced Leap, a ftware-supported method for stra tegic information technology and ta planning Leap is said to use elements of

es analysis to produce a plan for phased system development.
Leap is supported by Super-Mate oftware that includes a knowledge are used to evaluate current system strategies and to recommend future ons for information technology. Super-Mate runs on IBM Person al Computer ATs. XTs and compa

Leap is packaged as method, soft ware, technical training and consult-ing. A typical package costs \$29,000. LBMS, Suite 800, 2900 North Loop W., Houston, Texas 77092.

LBMS, Inc. has introduced A late, a tool said to supplement and sinforce a foundation of integrated techniques and methods cause LSDM, LBMS's Structured Develop

ment Method Auto-Mate guides users through the development cycle with graphics and documentation support. Mou driven graphics support the creation and maintenance of logical data res, data flow diagrams and

entity life histories Standard reporting as well as ad hoc reports are available.
Auto-Mate runs on the IBM Peronal Computer AT, XT and compatibles It costs \$4,000 LBMS. Suite 800, 2900 North Loop

W., Houston, Texas 77092. DCC Data Service has introduced On-Line Locator, a program said to automatically match a company's

or with its alosset dietw The program allows network org ons to identify proximity of lo cation. It incorporates a data base of longitude and latitude information

The caller's ZIP code or city and state are used to determine coordi On-Line Locator, for the IBM Per-nal Computer XT or AT costs nonal DCC Data Service, #610 1990 M St

N.W., Washington, D.C. 20036

Pal Syste rme has announ gie, a data analysis system for IBM Personal Computers, Digital Equip-ment Corp. VAX and Hewlett-Pack-ard Co. HP 3000 systems. Beagle is said to test hypotheses

and propose hypotheses for testing Output can be either a set of deci on rules for classifying examples in a form that the package can use and that the user can understand or those same rules expressed as programs currently available in Fortran, Pascal, Basic and C. Reportedly, Beagle rules can be plugged into any software the user writes PC-Bengle costs \$398. VAX-Bengle

tets \$1,198 Pai Systems, 3139 E. Almond Ave Orange, Calif. 92669

Software languages

Software Merchants Unlimited, inc. has announced Systems Imple-mentation by Example (Simple), a nent language

It is said to employ a visual interface that allows users to develop complete business applications with out using procedural code.

our using procedural code.

According to the vendor, Simple can be used in all stages of the system's development life cycle, from systems analysis through design, programming, testing, maintenance and documentation.

ple runs on an IBM Personal omputer or compatible, according to oftware Merchants Unlimited. It is priced at \$995.

ftware Merchants, 3767 Overland Ave., Los Angeles, Calif. 90034.

Software utilities

Barrington Systems, Inc. has in-troduced Clarion, a structured pro-gramming language designed for mercial applications. Features include integrated utilities, interactively designed screen and report layouts and data files that permit the use of multiple composite

Clarion also features applicaprograms supporting field-level edit-ing, Help screens, multilevel winws, support for networking, record

sharing and record locking as well as

The complete Clarion package indes a set of 12 interactive utility It runs on an IBM Personal Com-

ster or compatible. Clarion costs \$296.

s, 150 E. San Road, Pompano Beach, Fla. 33064.

Generic Software, Inc. has introaced Auto-Couvert, an add-on

package for transferring drawing files from Autodesk, Inc.'s Autocad to the vendor's Generic Cadd and

According to the vendor, all major drawing components and text can be transferred between the two pro-

Auto-Convert reportedly can also bring three-dimensional drawings from Megacadd's Design Professional software as well as Microcadd's 3-D package to Generic Software's Gener-

ic Cadd Auto-Convert, one in a series of lar packages, is priced at \$24.95. Generic Software, 8763 148th Ave. N.E., Redmond, Wash. 98052.

Zview offers security checking and Help screen displays at both the screen and field levels. Other features include the auto-matic conversion of data types to and from ASCII screen format, a range of optional data field characteristics, a

Data Management Consultants has introduced Zview, a C program-mer's screen development tool for the

IBM Personal Computer

Zview is priced at \$245.
Data Management Consultants, #7
5325 S. Valley View Blvd., Las Vegas, Nev. 89118

North America Mica, Inc. has in-troduced the Plot-II plotter package for IBM PC-DOS-, Microsoft Corp. MS-DOS- and Digital Research, Inc. CP/M

86-based microcomputers.
Piot-II is said to generate color keyed and time-scaled project diagrams, bar charts, earned value and costs control histograms or line graphs for projects managed with the wendor's PMS-II critical path soft-

Plot-II costs \$695 North America Mica, Suite 110, 5230 Carroli Canyon Road, San Die go. Calif. 92121.

The Laser Connection has an-nounced Softype, downloadable fonts on floppy disks, and Popeet, a

pop-up utility that lets laser prints s control their printers through the keyboards of personal comput

Both packages were designed for use with QMS, Inc.'s QMS Kiss, Big Kiss and Smartwriter laser printers. Popset features commands for nargins, font selection, line and margins, tont selection, line and character spacing, paper source, common application setups, emula-tion modes and copy counts. It is ran-dom-access memory-resident. Softype costs \$199. Popset costs

The Laser Connection, P.O. Box 850296, Mobile, Ala. 36685.

Taylortechnical Corp. has an-nounced Perform II, performance measurement software for IBM Personal Computers, XTs and ATs.

Perform II is said to provide the
ability to monitor productivity. It
compares actual hours with earned

Ours and control of the control of t form If Sort Utility is available for \$395.

Taylortechnical, P.O. Box 1878, icomington, Ind. 47402.

Clarity Software Corp. has an-nounced Cell/Mate, software said to combine automatically produced En-glish documentation features and er-ror-checking capabilities for Louss Development Corp. 1-2-3 and Sym-

an English description or the tents of a cell, row or column as well accumentation of a formula and

all cells used by the form It also produces a list showing

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COMPUTERWORLD CHOMMANICATIONS

NEW PRODUCTS/MICROCOMPUTERS

where a cell is referenced by other tential errors and trouble spots dentified in more than 30 re-

Cell/Mate is priced at \$89. Clarity Software, Suite 206, 13276 search Blvd., Austin, Texas 78750.

Xerox Corp. has introduced Sean 'N File and Sean 'N File w/ Editor, software that enables a Xerox Tele-copier 296 to scan text and graphics

copier 200 to scan text and graphics images from paper documents direct-ly to a computer disk.

The software works with Xerox 5060 family personal computers as well as the IBM Personal Computer

well as the IBM Personal Computer and compactibles. Scan 'N File allows the documents to be displayed, edited, printed and stored once on disk. Scan 'N File w/ Editor allows uners to cut and paste, zentor ailows users to cut and paste, type over, draw on or eraze all or parts of documents. Piles can be merged with documents created by other applications packages. Scan 'N File wi Editor costs \$995. Scan 'N File wi Editor costs \$995. Xerox, 800 Long Ridge Road, Stamford, Conn. 06904.

Sterling Software, Dylakor Divi-sion has announced Dyl-280 II VMPC/370, a version of its Dyl-280 II information management utility for the IBM Personal Computer XT/ 370 and Personal Computer AT/370 computers running IBM's VMPC op-

computers running IBM's VMPC operating system.

The product allows users to test and develop Dyl-280 II programs at the microcomputer before submitting them to the host for processing. It also allows users to retrieve and update almost all mainframe data base and file structures including IBM, IDMS, Sequential and ISAM.

Dyl-280 II VMPC,370 Is available for a monthly fee of \$15 per PC.

syr-soo is VMPC/3/8 is available for a monthly fee of \$15 per PC. Sterling Software, P.O. Box 3030, 17418 Chatsworth St., Granada Hills, Calif. 91344.

Attachmate Corp. has announced the 3270 Host Graphics Program designed to allow personal computer

raphics.
The product uses the vendor's SN- and Digital Communications Associates, Inc. Irrus-compatible 3-N-1 oax Adapter and 3270-PC Emulation to four companions of the co tion Program to manage up to four concurrent host sessions. Pull IBM 3270 Personal Computer graphics

3270 Personal Computer graphics screens can be displayed.
The product supports both the BIM Color Oraphics Adapter and the Enhanced Graphics Adapter.
The Attachmate 3270 Biost Graphics Program costs \$696. The 3-N-1 Coar Adapter cost \$1,360.
Cara Adapter cost \$1,360.
Bellevire, Wash. 98005.

Software data base management systems

CSDC, Inc. has announced Rollindez with Kardindez, a data base and record-laceling system for IBM, Texas Instruments, Inc. and other Microsoft Corp. MS-DOS personal comput-

The program features a card in-dexing system, a label maker, a uni-

rsal filing system and either an a anta receivable system rentory control system.

inventory control system. No programming skills are re-quired for operation. A scan feature links entries to a detailed sort leve. Up to 750 sort selections and 12 sort arrangements are provided. Bolindex with Kardindex costs

7844 Kendalia, Houston, Texas 77036

Software enhancements

ment nackage tasking, multiuser operating system with a complete set of resident tools

Forth, Inc. has announced Poly-forth ISD-4, a version of its Poly-forth integrated software develop-

ent. It has drivers for serial mexers and a programmable t

exers and a programmable read by memory programmer utility. only memory programmer utinty.
Two memory management fea-tures have also been added: run-time overlays for IBM Personal Computers and random-access memory disk sup-port for IBM Personal Computers and Motorola, Inc. 68000-based systems. Polyforth sy \$2,450 to \$3,875 systems cost from

Forth, 111 N. Sepulveda Blvd., Manhattan Beach, Calif. 90266.

Quadram Corp. has announced enhancements to its Microfauer II universal printer buffer. New features include printer supble with Hewlett-Packard Co. plot-

630-type environment requiring End of Transmission/Acknowledgment

Microfazer II is said to buffer prin data without using up any computer memory. It also features front panel switch selectivity and a bypans mode for unbuffered operation with hardware handshaking

Prices begin at \$375. Quadram, One Meca Way, Norcross, Ga. 30093.

Compavision International is announced Graph Business Grapt ics 6, a graphics software progra-for IBM Personal Computers. Giraph 6 is said to provide multi ple choice fill-in-the-forms menus. It

How do you answer those tough questions about VAX resource usage? Quantum RS.



nen you need software for VAX* resource magement, system accounting, and source planning, you need Quantum RS, live you maximum system information in minimum effort so you can account with minimum error so you can account for current VAX resource usage, emicipat future requirements and plan wisely for timely investment in additional hardware-Quantum RS accounts for computer usage by individual users, projects, user ame/projects, departments, accounts and by other accounting entities you define. ntum RS tracks all available VMS* sources to give you answers on: ■ Capacity planning ■ Project acc



Continued from page 95
also has improved data entry proce-dures and graphics features includ-ing up to 1,000 data points; optional automatic placement of bar values we or in the bars, and pie values side or inside the pie slices; and er output to any con

iraph 6 costs \$99. Girapa 6 costs 3590. Compuvision International, P.O. Box 1287, Old Chelsea Station, New York, N.Y. 10013.

CSDC, Inc. has announced Ver-ion 3.2 of The Director hard disk, scal-area network management pro-ram for Microsoft Corp. MS-DOS

meno-driven shell that allows users to call up programs, batch files, local-area network functions and MS-DOS nctions with a single keystroke. The Director also offers password

The Director and a display sequencer and is said to be fully compatible with networking systems.

The Director is priced at \$69.95.

CDSC, 7844 Kendalia, Houston,

Trillian Computer Corp. has added synchronized audio and animation to its Trillian Demo Generator Concurrent Authoring System. The audio and animation synchro nization mechanism allows the au-thor to create a demo or tutorial and then add sound. The author can iden-tify frames in the tutorial and write

the soond script in blocks corre-sponding to those frames. The system costs \$6,800. The cas-sette player, headphones and computer interface cost \$197

Trillian Computer, Suite One Alberto Way, Los Gatos, Calif. 95030.

Brooks Scientific, Inc. has an-nounced an equation solver for use with the vendor's PCTran Plus modular finite el r finite element analysis program. According to the vendor, the solv-allows problems of unlimited size er allows problems of unlimited size to be analyzed. There reportedly is no limit to the number of nodes, ele-

ments, constraints and degrees of freedom in a PCTran Plus analysis. Prices start at \$1,295. Brooks Scientific, 56 Wheeler St.,

West End Plim, Inc. has announced Version 2 of its Breakwert, painting package for IBM Personal Computers and compatibles. New features include unlimited number of brush styles, full color scaenin, full friskes and steeric expabilities, multiple screen and the ability to paint between them, brushes for mixing and smearing images and the color with the control of the color with t

Brushwork is part of the vendor's Artwork Environment. Software costs from \$750 to \$2,500. A com-Software

plete system costs \$16,500.

West End Film, 1825 Q St. N.W., Washington, D.C. 20009.

DBI Software Products has re-leased Trajectories, Version 5.0.3, said to produce professional statisti cal results.

Trajectories offers an interface to mainframe and other software pro-grams. Version 5.0.3 includes exanded statistical functions such as programs for two-way analysis of variance (Anova) with repeated mea-

variance (Anova) with repeated measures and equal and unequal sample sizes and two-level nested Anova with equal and unequal sample sizes, Neuman-Keulu test and paired T-test. Trajectories operates on Microsoft Corp. MS-DOS systems as well as Xeniz systems. It costs \$350. DBI, Suite 100, 206 W. Michigan, Mt. Pleasant, Mich. 48565.

Lifetree Software, Inc. has an-nounced that its Volkswriter 3 word processor for the IBM Personal Comuter is now available on 314-in. media to run on the IBM PC Convertible and the Data General Corp. Data Gen-

Volkswriter 3 is a full-feature word processing program wih a 170,000 word on-disk spelling check-er, automatic multifunction math,

stomized layouts and text merge. Volkswriter 3 costs \$295. Curre owners can upgrade to the 31/4-in. for-mat for \$50.

Lifetree Software, 411 Pacific St., Monterey, Calif. 93940.

Communication Sciences Cor has released Version 2 of its Val-desktop manager for IBM Person

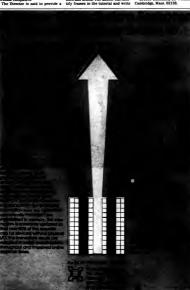
computers. Version 2 includes file management functions such as automatic al-habetical listing of all files and sub-tirectories; a listing of paths to all juddirectories, the ability to locate a specific file in any subdirectory; and he ability to display the contents of selected file in ASCII or hexadeci-

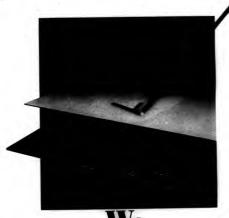
mai formats.
It also provides the ability to de-lete a file in all subdirectories; the ability to move entire subdirectories as well as individual files; and the ability to copy entire subdirectories as well as individual files. Valet costs \$49.95.

Communication Sciences, Box 130, ute 1, Thornburg, Va. 22565.

Communications

Waterloo Microsystems, Inc. has mounced the SNA Irma Server ftware product for its Waterloo et Network Operating System for





We Have Met The Competition...

NEW PRODUCTS/MICROCOMPUTERS

Continued from page 96

The SNA Irma Server is said to allow a single Digital Communications Associates, Inc. Irma board to be used by

any personal computer in the Port network. A Port network can support multiple SNA Irma Serv-ers. Any PC in the network can emulate an IBM 3278 Model 2 terminal.

Users can perform one or more terminal sessions along with other concurrent activi-

SNA Irma Server produces an audit trail of mainframe ses-

The SNA Irma Server costs Waterloo Microsystems, 175 Columbia St. W., Water-loo, Ont., Canada, N2L 525.

Multi-Tech Systems, Inc. has introduced the Multimo-dem 224EC, a 2,400 bit/sec. internal-card modem said to

Networking Protocol (MNP)

Networking Protocol (BNP) error correction protocol. The modem was designed to fit all IBM Personal Com-puters, Personal Computer XTs, ATs and compatibles. It can operate in asynchronous

environments and automati-cally detect and run with or without the MNP protocol. Other features include Hayes Microcomputer Prod-ucts, Inc. AT command set compatibility, autodial and autonoswer and half- or full-duoler operation.

comes packaged with Multi-com PC communicas com PC communications soft-ware. The modem costs \$699. Multi-Tech Systems, 82 Second Ave. S.E., New Brigh-ton, Minn, 55122.

David Systems, Inc. has introduced the Integrated Personal Computer Adapter (IPA), a plug-in board for linking IBM Personal Com-

David's Ethernet-co

cal-area network. The IPA is said to rep the Ethernet transceiver, co-axial cable and 3Com Corp. board. It works over existing telephone wiring. According to the vendor, the IPA and the user's telephone set can share the same wire for con-

current data and voice comphone set adapter using a standard RJ-11 plug is built into each IPA. The IPA costs \$596

David Systems, 701 E. velyn Ave., Sunnyvale.

PC's Limited has intro-duced a half-card modern said to handle 2,400 bit/sec.

The card is compatible with the IBM Personal Com-Personal Computer XT, AT and compatibles. It features automatic or manual Originate and Answer functions and accommodates transmissions at 300 or 1,200 hit/sec and in asynchronous

Other features include an integral speaker with softintegral speaker with sories ware volume control, accessible dip switches for setup, tone or pulse dialing, call progress detection and dual telephone jacks.

The modem costs \$295.

PC's Limited, Building Three, 1611 Headway Circle, Austin Crays 207544.

Genoa Systems Corp. has announced Netsafe, a local-area network tape server. Netsafe consists of Gen oa's Galaxy external tape backup and restore subsys-tem. It interfaces with the lo-

cal-area network at the Net cal-area network at the Net-bios operating system level and allows users at any point on the network to program backup automatically. Back-ground processing may pro-ceed while backup and re-store is in progress. A 20M-byte external ver-sion of Nesaric costs \$1,506, and a 60M-byte external ver-sion costs \$2,206. Nesaric software is available for \$199.

software is available for \$199. Genoa Systems, 73 E Trimble Road, San Jose Calif. 95131.

Data storage

Peachtree Technology, lac. has introduced the T-285E, a 33M-byte tape back-up subsystem for the IBM Personal Computer, Personal Computer AT or AT. The T-33SE comes with

two compact, automatically loading 20M-byte reels and an on-board error detection

The T-33SE is priced at

996. It is available in an in-ernal version, the T-338I, thich costs \$795.



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The New 5000 Series.

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formance printing s...each backed by a support program a except and as the printer it

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prage Technology. It's More Than Our Name... It's Our Commitment.

NEW PRODUCTS/MICROCOMPUTERS

ood from page 98 chtree Technology, 312 ng Park, Norcross, Ga. 30071. Peachtree

CMS has introduced the SCSI wer Twin 20:20 20M-byte combiion hard disk and tape backup ipherals in internal and external

ingurations.
The external configuration inides 20M-byte half-height small
imputer systems interface (SCSI)
ik and tape drives, each of which tains an embedded large systems rface controller. Also included is the half-size CMS Personal Computer Host Adapter card, which allows the

Host Adapter care, which allows the personal computer to communicate with the SCSI peripheral bus. The internal SCSI disk and tape configuration includes a 20M-byte, half-height 4-in. tape backup unit and CMS' 20M-byte SCSI Drive Plus

expansion card drive.

The external unit costs \$1,950, d the internal unit costs \$1,660. CMS, 401-B W. Dyer Road, Santa

Ana, Calif. 92707.

Universal Peripherals Interna-tional Corp. has announced Trump-card, a 21M-byte Winchester storage

subsystem for the IBM Personal Com-puter, Personal Computer XT and

Trumpeard features the ability to support a second Winchester disk drive. The unit's disk-drive component contains two disks and four heads. It offers a transfer rate of 5M bit/sec. and an average access time of

Trumpeard was designed to oper-ate with Microsostt Corp. MS-DOS and IBM PC-DOS 2 or higher. Trumpeard costs \$795.

Universal Peripherals I al, Suite 330, Century Centre, 100 Homeland Court, San Jose,

AST Research, Inc. has intro-duced the AST-2000, a 314-in. hard disk and tape small computer sys-tems interface (SCSI) subsystem for Apple Computer, Inc. Macintosh Plus and Ile users.

The AST-2000 provides 20M bytes The AST-2000 provides 20M bytes of external hard disk storage along with an integrated 20M-byte tape backup. It features an SC3 port, 34-in. drive technology and built-in tape backup. The AST-2000 incorporates its own cache memory. It can also be used as a streaming backup device as well as a random-access device.

The AST-2000 is priced at \$2,795. AST Research, 2121 Alton Ave., Irvine, Calif. 92714.

N/Hance Systems has introduced the N/Hance 525, an optical disk system for users of IBM Personal Computer- or compatible-based computer-aided design or manufacturing

The N/Hance 525 is a write-once, read-many-times system. It provides 230M bytes of formatted storage and includes an optical disk drive, a 5%-in. disk, an IBM PC short-board controller and device driver software. It has a data transfer rate of 2.5M bit sec. and can be mounted inside the computer or used externally.

N/Hance 525 costs \$3,495. An opment file tional text data base management file system that can index up to one mil-lion words costs \$1,000.

N/Hance, 908R Provide way, Dedham, Mass. 02026.

Corp.'s hanced Peripherals Division has in-troduced Fliecard20, a 20M-byte, 34-in. half-height hard disk drive with hard-disk controller in a slot

card design. Filecard20 was designed for the IBM Personal Computer XT and compatibles. It takes up 1½ slots in the XT. It has a transfer rate of 5M bit/ sec. and an average access time of 80 msec. It features a drive with hard ed media on two platters with four ads as well as head lock and spin-

The Fliecard20 is priced at \$8: Western Digital, 2445 Mcl Way, Irvine, Calif. 92714.

Syngen, Inc. has unveiled the SC6000 Turbe Controller for IBM nal Computer and Personal uter XT hard disks and the d Pair Winchester disk dri

osystem. The controller is said to ach true one-to-one interleaving by incor-porating a full-track buffer and read-ahead BIOS. It can control up to two hard disk drives and can acco date a Sysgen SC500 tape cont

for streaming tape backup.

The Matched Pair incorpora Turbo Controller. It is available in a full-height, 70M-byte configuration

or a half-height, 40M-byte configura-The Turbo Controller costs \$250.

The 70M-byte Matched Pair costs \$2,995, and the 40M-byte version costs \$1,795.

Sysgen, 47853 Warm Springs Blvd., Fremont, Calif. 94539.

Genoa Systems Corp. has an-nounced Release 2.2 of the software that supports its Galaxy line of half-height 20M- and 60M-byte cartridge or cassette, disk or tape backup sys-tems for IBM Personal Computers

and compatibles.
Release 2.2 is said to add full No-vell, Inc. Netware compatibility with advanced backup and restore capa-bilities. It also features whole-disk image backup; non-IBM PC-DOS par-

NEW PRODUCTS/MICROCOMPUTERS

tition image; the Pixup disk-error utility; enhanced automatic backup; directory sort; multiple tape backup and restore; and full menu revision.

Prices for the Galaxy subsystems range from \$1,096 for a 20M-byte in-ternal model to \$1,296 for a 60M-byte

Genoa Systems, 73 E. Road, San Jose, Calif. 95131. 73 E. Trimble **Auxiliary equipment**

CPS Electronics, Inc. has intro-duced the Electra Guard 20, a six-outlet surge suppressor strip. The strip is said to protect microprocessor-based equipment from voltage surges. It offers multistage protection on hot, neutral and ground lines. It is said to meet IEEE specifi-

ons, parts A and B, for surge volt-lt features a safety on/off

switch and a 6-ft cord.

The Electra Guard 20 costs \$99.96.
CPS Electronics, P.O. Box 2460,
4151-112th Terrace N., Pinellas Park.

Fla 34290

Electronic Specialists, Inc. has introduced the Modem/Power/Stat-ic Pac, said to provide a protection package for the traveling portable The unit combines broadband AC wer filtering. extended-range

ike suppre arge plate. ion and a static d ower is available from a cor tional three-prong outlet and a CEE-22 universal portable computer pow-

n co Mode er connector. Modem connection is through standard modular RJ-11 con The Modem/Power/Static Pac costs \$184.96, including 6-ft power

Electronic Specialists, 171 S. Mair St., Natick, Mass. 01760.

Kensington Microware Ltd. has announced the System Saver Ma-for the Apple Computer, Inc. Macin-tosh and Macintosh Plus microcom-

muters. According to the vendor, the Sys-tem Saver Mac is said to organize the system's power with two switched

outlets for peripherals; protect the system from surges, spikes and noise, and keep the system cool. System Saver Mac is priced at 100 95

Kensington Microware, 251 Park Ave. S., New York, N.Y. 10010.

COMMUNICATIONS

Controllers

Hadax Electronics, Inc. has an nounced an automatic switching system designed to provide a means of switching different interfaces be-tween active and fallback positions. According to the vendor, standard AB switching can be performed ei-ther locally through toggle switches on each of the individual channel cards or remotely through a rem

control panel connected to the rack. Gang switching can be performed on each rack in the system locally through the Gang Switch or through the remote control panel. The standard rack-mount unit ac emmodates up to 16 channel inter

face cards. The channel price ranges from \$110 to \$240. Hadax Electronics, 44 Sea Cliff Ave., Glen Cove, N.Y. 11542.

Software

Octel Communications Corp. has introduced Aspennet networking software, an enhancement to its As-pen and Aspen Branch voice message

According to the vendor, Asp allows users to set up large voice net-works. The software automatically routes messages between systems over analog phone lines, taking ad-

age of low-cost routing alterna-Each node can have a two-way exchange and the system acco dates up to 500 remote nodes.

Aspennet networking software is priced from \$10,000 per node to \$2,000 per node, depending on sys-

Octel Communications, 890 Tas-man Drive, Milpitas, Calif. 95035.

Multiplexers/Moderns

Carterfone Communications Corp. has added the Ascomm H se iplexer family.

The H series features Hayes Micro-computer Products, Inc. compatibil-ity and dynamic bandwidth reloca-It achieves asynch throughput speeds of up to 19.2K bit.

Two Adcomm H ver fered: the -1, priced at \$1,695, and the -2, which provides a host-ad-dressable independent statistically multiplexed printer channel, priced

Carterfone Communications, Suite 1100 W Dallas, Texas 75247

Local-area networks

HVE Engineering, Inc. has an-nounced the Symer-System VME, VME real-time interplace, said to en-able VMES used-insured to be in-tegrated into one real-time network. Using two or more HVE Symergist ill translations, interconnected by 64-conductor cable. Syner-System inter-faces permit unfinited expansion of the Control of the Control of the Control of the VMESS of the Control of the Control of the VMESS of the Control pendently and in a real-time

The system supports 24-bit addressing. A two-node Syner-System VME/VME interface costs \$1,495. HVE Engineering, 1684 Dell Ave., Campbell, Calif. 95008.



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NEW PRODUCTS /COMMUNICATIONS

Test equipment

ated Technology Corp. has troduced the SC-100 Signal Chan-, a local-area network signal tracer. The hand-held device was engied for coaxial cabling. It may be d on baseband or broad networks including those by Wang Laboratories, Inc. and ITT ier Terminal Systems, Inc. Ac-

ng to the vendor, it has an oper ing capability to 35 MHz. SC-100 Signal Chaser costs \$75. Integrated Technology, 1228 N. adem Drive, Tempe, Ariz, 85281.

Auxillary equipment

me, an access control system.

The Traquet 1016, uses a combinaon of hardware and software to
ntrol access for up to 16 dial-up metric access for up to 16 dial-up odems or computer ports. It records wy call or call attempt on a single-se audit trail 24 hours a day. The Tragnet 1016 is not

The Traquet 1016 is priced at \$275 per line card. Up to 16 line cards can be installed in the \$995 Traquet 1016 ack mount unit. Leemah, 3948 Trust Way, Hay ward, Calif. 94545.

nts, Inc. and Sky exas Instruments, Inc. and Say apoters, Inc. have announced the tex Model 2400 array processor for use with the Nubus architecture in the TI Explorer symbolic process-

commercial Explorer systems.

There are four standard models of
the Tempest version of the Explorer.
Prices range from \$71,900 for a system with 4M bytes of memory, two
140M-byte disk drives and a carrides range to \$55,600 for a system.

tridge tape to \$85,400 for a system with 8M bytes of memory, two 140M

byte disk drives and an Ethernet lo-cal-ares network interface. TI, P.O. Box 809063, H-856, Dallas.

ng computer. The Vortex Model 2400 board will reportedly operate as a memoryprovides capability for matrix alge-bra, transcendental and trigonomet

transformations.
The Vortex Model 2400 board available in the third quarter of thi year, is priced at \$9,900.
TI, P.O. Box 809063, H-853, Dallas rter of this Texas 75380.

Daisy Systems Corp. has intro-duced Cellmaster, an engineering workstation for designing cell-based egrated circuits Cellmaster offers automatic pl ment and routing of free-format layouts, error-free interactive optimization of the chip layout throug

said to permit any number of bloc to be placed anywhere on the chip. Cellmaster runs on the vendo Intel Corp. 80286-based Logici workstation with accelerated ics. It costs \$129,000. Daisy Systems, 700 E. Mid ad, Mountain View, Calif. 94039

Southwest Technical Produces. has announced the S1500 m puter designed for small to

The S1500 is a 1-MHz M inc. 68010 system with a 2M-byte memory. It features a 40M-byte Win-chester disk, a 60M-byte streaming tape, eight RS-232 ports and an op-tional floating-point compressor. It

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& PERIPHERALS

Turnkey systems

for proce

Available in multiuser configura-ms, the Model 3000 uses the Gould IP9000 image processor to proces Landant and Spot data used in ge-physical exploration and other appli-cations. In addition to the IP9000, the Model 3000 integrates a host or er based on Digital Equi Corp.'s Microvax II and a r sensing software package. Functions include image enl

runctions include image enhances ent, multiple image correlation, im-e overlay and geometric correction. The system is priord at \$99,185. Gould, 46360 Fremont Blvd., Fre-ont, Calif. 94538.

Processors

BICC-Vero Electronics, Inc. has smounced a memory module for ME-based computer systems.

The module features 2M-byte memory capacity, 8, 16-, 24- and 32-bit data transfers, 24- and 32-bit addressing with 4G bytes of total address space, unaligned transfers allowing word transfers at odd addressing word at the properties at odd addressing word transfers at odd addressing word transfers at odd addressing word at the properties at the p esses, byte parity error detection, ogrammable interrupter, error logng and typical write/read access es of 90 to 240 nsec

BICC-Vero Electronics, 40 Lindeman Drive, Trumbull, Conn. 06611.

Texas Instruments, Inc. has an-nounced a version of its Explorer LISP-based computer system said to meet the U.S. governme

meet the U.S. government a implement al Tempest program. The Tempest version was designed to reduce security risks by conforming to Tempest standards. This ver-sion is fully compatible with TI's

NEW PRODUCTS/SYSTEMS & PERIPHERALS

runs under the AT&T Unix System V. According to the vendor the sys-tem can accommodate up to eight us-

ers.
The S1500 is priced at \$9,995.
Southwest Technical Products,
219 W. Rhapsody, San Antonio, Tex-85 78216

National Instruments has an-ounced a driver said to control the GPIB11-V2 interface card in Digital Equipment Corp. Microvax II appli-cations running under the VAX/ELN erating system.

In addition to the general-purpo interface bus (GPIB) device handle the software consists of a Pascal lan-guage interface and an interactive control program. All the software is as source code and is written in VAX/ELN Pascal. The software is available for \$500. The GPIB11-V2 costs \$1,495. National Instruments, 12109 Technology Blvd., Austin, Texas 78727

MDB Systems, Inc. has announced the MLSI-BAI1-2000 and the MLSI-BAI1-3000 rack-mountable chassis. The MLSI-BAI1-2000 can be used as a basic computer chassis for Digi-tal Equipment Corp. Q-bus board-level computer modules. The second

chassis is used as an expansion chas-sis for all DEC Q-bus CPU systems as rest as for the Microvax computers. Each backplane and card guide as-rembly has 22-bit addressing and can commodate eight quad-size mod-les, 16 dual-size modules or any ambination. well as for the Microvax cor

The MLSI-BA11-2000 costs \$1.750. The MLSI-BA11-3000 costs

\$1,650 MDB Systems, 1995 N. Batavia St., Orange, Calif. 92665.

Graphics systems

Microfield Graphics, Inc. has an-nounced the T4 Color Graphics Con-treller for use with the IBM RT Per-

The T4 is a 1,024 by 800 pixel, 4 plane color controller that uses a very large-scale integration-based bit-slice processor. It occupies a sin-

gle slot on the RT PC's peripheral bus. The T4 is supported by an ANSI phics interface

the T4 is priced at \$3,200.

Microfield Graphics, Suite 161,
285 S.W. Nimbus, Beaverton, Ore. 8285 S.W. Nimb

Data Translation, Inc. has intro-duced the DT2651 High Resolution Frame Grabber, a single-board image processing product for Digital Equipent Corp.'s Microvax II, Micro/PDP-

11 and LSI-11 systems The board is said to perform real-time math and logic operations on single or multiple 512- by 512-pixel images with full 256 gray-level accu-racy. The Frame Grabber features

multiple synchronization I/Os, an onboard 8-bit arithmetic logic unit and two 256K-byte memory buffers.
Also available is the DT2658 Aux-iliary Frame Processor, said to speed

The DT2651 Frame Grabber of \$2,995, and the DT2658 Auxiliary Frame Processor costs \$1,585. Data Translation, 100 Locke oro, Mass. 01752. Drive, Marth

Data storage

Zetaco, Inc. has unveiled the LRI 10 optical subsystem, the MV/4000 and MV/10000 memory expansion boards, subsystems, DPS-1 dual boards, subsystems, DFS-1 dual processor switch and STA-1 tape drive interface adapter, all Data General Corp. compatible products. The LRS-10 includes an optical disk, a magnetic disk and Zetaco's

controller that emulates DG's Argus. Prices range from \$20,000 to \$30,000. The expansion boards are available in 2M-, 4M- and 8M-byte capacities and cost from \$4,995 to

Subsystems are fully integrated magnetic disk and tape subsystems with capacities ranging from 300M to 3G bytes. Prices range from \$12,900 The DPS-1 allows two CPUs to

share one tape drive and one line printer. It costs \$1.895. The STA-1 allows con STC-interfaced drive to a Pertec Peripherals Corp.-interfaced tape con-troller. It costs \$1,895. Zetaco, 6850 Shady Oak Road, Eden Prairie, Minn. 55344.

Emulex Corp. has introduced the EQS, a Digital Equipment Corp.-com-patible mass-storage packaged sub-

The EQ3 is a three 54-in. periph eral subsystem enclosure capable of housing either a single disk drive, a disk drive with 4-in. cartridge tape drive, dual disk drives or dual disk drives and a 4-in cartridge tape drive. It is available in both ST506 and enhanced small disk Interface disk configurations.

The subsystem provides up to 1.2M bit/sec. transfer rate and up to 638M bytes of storage. Prices range from \$6,050 to \$21,000, depending on the configura-

Emulex, P.O. Box 6725, 3545 Har-bor Blvd., Costa Mesa, Calif. 92526.

Emulex Corp. has and Emulex Micro Subsystem (EMS) kits for providing a complete single-disk, dual-disk or tape puckage for

use in Digital Equipment Corp.'s Mi-crovax II BA123 World Box enclo-Each EMS kit consists of one or two disk drives with all mounting hardware, a QD01, QD21 or QT12 ntroller, activity panel, all neces-Centimus en page 104

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NEW PRODUCTS/SYSTEMS & PERIPHERALS

Continued from page 103 sary cables, RX50 or TK50 disk diag-nostic and formatter utilities and nostic and formatter utilities and documentation set. The kits provide up to 1.2M bit/sec. transfer rate and up to 1.276G bytes of mass storage. Prices for the kits range from \$2,570 to \$17,995.

Emulex, P.O. Box 6725, 3545 Harhor Rhyd Costa Mesa Calif 92626

Emulex Corp. has introduced the LM04 and the LM08 memory boards for Digital Equipment Corp.'s Microx II systems. The LMO4 is a dual-height 4M-byte memory expansion board, and the LM08 is a quad-width 8M-byte board. A maximum of two memory boards can be used to increase the system memory capacity to 9M or 16M bytes.

Both boards feature user-selecta-ble array-disable switching and onrification. The LM04 costs \$1,495, and the LM08 costs \$2,995. Emulex, P.O. Box 6725, 3545 Harbor Blvd., Costa Mesa, Calif. 92626

Emulex Corp. has announced the SC7003 disk controller for integra-tion of disk drives with a storage le device or extended interface The controller emulates Digital quipment Corp.'s RH750 or 780/785 at 8600/8650 Massbus adapter ith an attached RM02/03, RM05 or

RM80 disk drive. It has espacities of 80M to 850M bytes and transfer rates from 1.2M to 3M bit/sec. The SC7003 has up to eight drive

ports on the board and features a 28-sector random-access memory buffer. The SC7003 is priced at 48,980. Emuiex, P.O. Box 6725, 3845 Har-bor Bivd., Costa, Mesa, Calif. 92626.

Qualogy, Inc. has introduced the OE-2000 family of enhanced small device interface (ESDI) storage sys-tems for Digital Equipment Corp.'s Microvax and Micro/PDP-11 comput-

crs.
The QE-2000 family includes a quad-height controller, the QE2, with a 1M-byte cache memory that will support up to four SSDI drives. The QE2 is configured with 5¼-in. Winhester drives with storage capaci-es of 140M and 330M bytes. QE-2000 series products are said to ourse up to 32 commands and dv-

namically compute the best order of execution.

Prices range from \$1,770 for the QE2 to \$36,000 for a fully configured rack mount system.

Qualogy, 2241 Lundy Ave., San
Jose, Calif. 95131.

logy, Inc. has introd Q6-4000 storage module device (SMD) subsystem for Digital Equip-ment Corp.'s Microvax and Micro.

PDP-11 computers. The QS-4000 system is said to fee ture a 1M-byte cache memory and will be offered with the Pujitsu Ltd. Eagle I and Eagle II drives, which can Eagle 1 and Eagle II drives, which can be configured to provide storage cap-cities up to 1.3G bytes. It can support one or two SMD drives with data transfer rates up to 24M bit/sec. The QS-4000 products also feature a dual wide Q-bus controller. The QS-4000 is priced from about

\$17,000 to \$30,000 Qualogy, 2241 Lundy Ave., San Jose, Calif. 95131.

Terminals

Link Technologies, Inc. has added the Link 220WP and the PCTerm WP to its alphanumeric terminal line. The Link 220WP is a version of the Link 220 terminal modified for word

Link 220 terminal modified for word processing applications. It includes a keyboard with 41 specially labeled word processing includes key. Punctions include a range of file handling, to control and editing commands.

The PCTerm WF is a version of the company's PCTerm modified for word processing applications. It provides an IBM display format and Personal Computer AT-style keyboard.

The Link 220WP costs 8649. The

Link PCTerm WP costs \$699 ink Technologies, 47339 Warm ngs Blvd., Fremont, Calif. 94539.

Human Designed Systems, Inchas introduced the HDS2000 series of Digital Equipment Corp. and Tek tronix Inc -cos natible terr The series is composed of six ter-minals, featuring 15-in. monitors and a choice of amber, green or page-

anisas, restaining 1-sis. Immirots and a choice of amber, green or page-white phosphor colors. The HD82000 series terminals include the HD82000 VDT; the HD82000 X video graphic terminal; the HD82200GX high-resolution graphics terminal; and the HD82210, HD82210 and HD82210 G APL disc

Play terminals.

The terminals range in price from 1795 to \$1,896.

Human Designed Systems, 3440
Market St., Philadelphia, Pa. 19104.

Printers/plotters

Digital Equipment Corp. has an sunced the LNOS Plus, a desktop la

ic tech with up to 8 page/min. spe

in addition, IM byte of full bit-map memory and Tektronix, Inc. 4010/4014 compatibility are stan-

The LNO3 is priced at \$4,995. Ac-cording to the vendor, a field service installable upgrade kit that converts the LNO3 Laser Printer to the LNO3



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NEW PRODUCTS/SYSTEMS & PERIPHERALS

Plus is available for \$1,595. Digital Equipment Corp., Maynard, Mass. 01754.

Power supplies Kalglo Electronics Co. has added the Line-Saver Model LS750 to its line of Aegis power conditioning

The unit utilizes pulse-width modulation to regulate the output voltage. It comes with a 36V scaled rechargeable battery, two Spike-Saver voltage-surge protected and

interference- and radio frequency interference-filtered AC outlets, audible and visual power failure warning ays-tem, test mode indicator and switch and replaceable exter-The Model LS750 costs

Kaiglo Electronics, 6584 Ruch Road, E. Allen Trnpk., Bethlehem, Pa. 18017.

Components

Virtaal Microsystems, c. has announced the AT/ Bridge, designed to provid IBM Personal Computer AT compatibility for Digital Equipment Corp. VAX users. The AT/Bridge is a board that can be plugged into the bus of the VAX, allowing us-ers to run PC AT application software from their termi-nals. Its PC AT Bus Interface allows connection to a variety of IBM PC option cards.

It features an 8-MHz Intel
Corp. 80286 processor, 1M

byte of random-access memo byte of random-access memo-ry, one IBM-compatible RS-232 port and an IBM PC/AT Bus Interface. The AT/Bridge currently works with DEC's Unibus running VMS. It costs \$7,500. 2150

Virtual Microsystems, 150 Shattuck Ave., Berkeley, Calif. 94704 AST Research, Inc. has mounced its CM-DHV16 16channel, asynchronous, seri-al interface card. The card is a quad-size module that replaces Digital Equipment Corp.'s DHVII asynchronous multiplexer

ynchronous multiplexer ard in DEC Microvax, Mi-ovax II, LSI-II and Micro/ PDP-11 computers. It plugs into any standard DEC Q-bus backplane alot and provides data transfer rates up to 38.4K bit/sec. on all channels

other features include a serial port for connection to DEC-compatible perinherals. cM-DHV16 costs

AST Research, 2121 Alton Ave., Irvine, Calif. 92714.

Auxiliary equipment Falcon Safety Products, Inc. has introduced the Dust-Off Pro System for computer

Dust-Off is said to improve electronic office machine performance by blasting away dust particles, removing dirt and cleaning hard-to-

reach places. It can deliver modulated blasts of triple-fil-tered, purified air ranging in grade from a burst to a mild It features a Pro Gun that

is attached to an 8-ft exten-sion hose. The hose attaches to a 32-ounce canister of Donat-Off Falcon Dust-Off Pro costs

Falcon Safety Products, 1065 Bristol Road, Mountain-side, N.J. 07092.

Falcon Safety Products, c. has announced the Inc. has the Clean Machine Hi-Tech Maintenance Kit, a collection of its preventive mainte-nance products for computer and office equipment users. The kit includes Falcon

MVS/XA, MVS, VSI users

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iduals receive them in written at when they pick up their mes format when they pick up their me sages. They seem to respond more promptly with accurate, hard copy in front of them. And since I can receive messages provides, anywher the TI 707 all but eliminates teleRay Forester believes that the TI
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up approximately one half of a breefcase, and legater own a peak opentool we needed for our division's field
communications, "he concluded,
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NEW PRODUCTS/PRICE REDUCTIONS

m page 106 nr Cleaner, Plater and Cleaner, on Con Anti-Static Spray Cleaner.

Screensafe Free Disposable Wipes and a Dust-Off II 4ace refill and valve. The products are con-ined in a plexistant kit

ined in a plexiglass kit riced at \$39.95. Falcon Safety Products, 1065 Bristol Road, Mountain-

PRICE REDUCTIONS

ded the prices of several id-in boards for the IBM trsonal Computer family id compatibles.

For the Personal Computer and the Personal Comput-er XT, the price of AST's 64K-byte Six Pak Plus multifunction board dropped to \$249; a 384K-byte configura-tion is now \$395. A 256K-byte Rampage board for hv-Rampage board for by-ing the IBM PC-DOS 640K-byte limitation is now \$396. With 2M bytes, the \$396. With 2M bytes, the board's retail price is \$1,295. Advantage for the AT sells for \$645 with 512K bytes. A 3M-byte version of Advan-tage costs \$1,945. The 356-byte Ramvantage AT expan-sion board now costs \$1,545. AST Research, 2121 Alton tre. Invisc Calif. 2027.4

Ave., Irvine, Calif. 92714 Verticom, Inc. has re-duced the price of its CD-1 and CD-1A 13-in., 640- by red-green-blue 480-pixel,

Both monitors are said to be compatible with the IBM patibles.
The reduced price for both monitors is \$795.

Verticom, 545 Weddell Sunnyvale, Calif.

Datacopy Corp. has dropped the price of its Mod-el 730 and Model 700 Word e Processing Systems The Model 730 is a flatbed scanner offering either 300 or 200 dot/in resolution. It comes with cables, Datacopy's Word Image Process-ing System (WIPS) software ing System (WIPS) software and interface board for the IBM Personal Computer XT or AT. It now costs \$3,950. The Model 700 includes the vendor's OCR Plus and WIPS Editor software in addition to the standard WIPS software. It costs \$3,950.

Datacopy, 1215 Terra Bel-Avc., Mountain View. la Ave., h Calif. 94043.

Texas Instruments. has announced price reduc-tions for its Explorer line of symbolic processing work-The lower prices apply to Explorer memory

boards

based on 256K bytes of dybytes of memory. Texas Instruments, P.O. Box 809063, H-857, Dallas, ry chips and to Explorer sysincorporating these Texas 75380

The 8M-byte Exp

system with

said to be expandable to 16M

memory boards cost \$17,500.
The 4M-byte boards cost Epson America, Inc. has

\$9,500. An entry-level devel mounced price reductions 2M on hard-disk versions of its Equity I, II and III IBM Per-sonal Computer-compatible bytes of memory costs \$44,900. Systems with 4M-byte and 8M-byte memories systems start at \$51,900 and \$59,900, ctively. All models are

The Equity I with 20Mbyte internal hard disk now mita Blvd., Torrance, Calif. costs \$1,895; the Equity II

with 20M-byte hard disk now Sleeor Corp. has reduced the price of its Optical Transceiver fiber-optic Ethcosts \$2,495; and the Equity III with 20M-byte hard disk now costs \$3,895, according ernet product.

The hard-disk versions of the Equity I and II feature a 360K-byte, 5¼-in. single floppy disk drive. The hard-disk Equity III

comes with a single half-height I.2M-byte floppy disk Epson America, 2780 Lo-

Siecor's fiber-optic Ether het products are said to be designed for use in creating fiber-optic backbone local-

area networks requiring pro-Features include collision detection electromes.

The Optical Transceiver costs \$699 Siecor, 489 Siecor Park, Hickory, N.C. 28603.

emember When the Idea of Automotive

State employee charged with giving drug dealers DMV data

Ran new-customer tion that allowed his accomplices to certify their prochecks with system

By Jeffry Beeler SACRAMENTO, Calif. — An operations specialist in California's Department of

spective buyers. Through his terminal in

Through his terminal in the Justice Department's Law Enforcement Data Cen-ter (LEDC), Gregory Dou-gherty, age 25, allegedly con-firmed the identities of Justice faces charges of aidpotential drug customers ing a cocaine selling ring by leaking restricted informa- to him by suspected cocaine

dealer Bradley Kent, 26. Before new customers were accepted by the drug dealers, officials charged. Dougherty checked their criminal histories and other background and then relayed his findings to Kent.

The case against Dougher ty and Kent is outlined in documents filed last month

As you can see from the accompanying illustration,

Court, where the two are charged with violating the California law forbidding unauthorized disclosure of official criminal histories. Both have pleaded innocent.

Dougherty's alleged illicit use of the LEDC's systems aided the dealers in distinguishing genuine cocaine cusmers from undercover police, the court papers said

trap, the suspects first ob-tained a customer's name age and automobile license plate number if they had not dealt with him previously Then, according to the court records, they directed Dougherty to enter the information at his terminal and ask the state's Department of tem to display the customer's

auto registration records. Access to information about undercover police cars is usually tightly restricted. So If the system replied to an inquiry with a "Record Unavallable" message, the suspects reportedly became wary of their prospect and shunned all future con-

Transportation Couldn't Get Out of First Gear.

the differential transmission wasn't the brainchild of Detroit No, it was more like Italy. And the

engineer was none other than Leonardo Da Vinci

Needless to say, talking differential transmissions over a plate of pasta in the 15th century was not altogether fashionable and,

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write directly, PacTel Spectro Services, 100 Pringle Avenue, Suite 750, Walnut Creek, CA 94596, attention N. Floyd.

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Seattle-area teen hacker sentenced

SEATTLE - An 18-year old computer trespasser was sentenced in King County Surior Court to two weeks in jail, 200 hours of community service and two years' proba-tion after being found guilty of breaking into the computers of four Seattle-area companies, including software developer Microsoft Corp.

Michael P. Wilkerson of Kirkland, Wash., apologized in court, and his attorney said the young man viewed the break-ins as "an intellec-tual exercise." He has cooperated with law enforcement by beining train county shee iff's deputies in computer crime and security proce dures as well as by assisting authorities investigating a stolen property case in North

Wilkerson, who moved to Kirkland from Calif., last year, is still a suspect in a credit card frau vestigation by Ventura Coun ty police. Several credit card numbers belonging to other people and a computer ported stolen from North Dakota were found and seized during the investigation against Wilkerson last Febru-

ary.
Wilkerson gained varying degrees of access to the firms' computers through ac-cess lines. Other victim com-panies in Washington were source Conservation Co., Sunstrand Control, Redmond: and Ken-worth Truck Co., Kirkland Microsoft first suspected an electronic break-in and authorized a police telephone tap last fall

- Peggy Watt



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RELATIONAL DATABASE SYSTEMS, INC.

Ashton-Tate files copyright suit against alleged Dbase pirate

Employee's tip. sparked inquiry

BALTIMORE - Software developer Ashton-Tate earli

er this month filed a copyright infringement suit in U.S. District Court against Ohis, Inc., a Frederick, Md.based developer of health and occupational safety data itoring systems. Ohis was charged with selling illegal copies of Ash ton-Tate products as part of its custom software. Federal marshals and Ashon-Tate representatives earched the Ohis offices and company officer's home ad seized dozens of copies of Dhase, some of them regis-

tered and others apparently illegal, and are reviewing the contents, said Geoffrey Berkin, Ashton-Tate associate

Berkin said Ashton-Tate began the investigation several months are after a tin from a former Ohis employ ee. It culminated with Ashton-Tate's petition to federal

court for the search authori-zation and a restraining or-der prohibiting Ohis from copying or distributing any Tate products, even

Berkin said Ashton-Tate believes Ohis was including complete copies of Dbase in its \$60,000 software sys-

tems, designed to track data for occupational health and safety records and which run under the Dbase system. We have no reason to believe (Ohis' software) won't competition against work with just nentime copies of Dbase," which are Resources, based in used by most value-added re-New York, which the soft-

Runtime copies are lice by Ashton-Tate for \$50. Ohis' listed telephone w nected shortly after the charges were filed, and an attorney for six individuals named in the complain

The Maryland suit is just one of several recent Asht Tate efforts to quash piracy and other meetial use I set month the Torrance, Calif., company filed civil charges of copyright and trade trademark infringement

distributing illegal copies of Dbase II and III to employees. The company designs and instalis computerized directory assistance equipment, pri-marily for local telephone mpanies. Ashton-Tate also brought

infrintement

copyright charges against Born Cos onte, Calif., which allegedby distributed illegal copies of Dbase III and Framework on hard disks it sold "Piracy is an industry problem, and we expect to continue our efforts against it," said Norman Block, Ash-

ton-Tate vice-president for

finance and administration.



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ware developer claimed was Hacker pleads guilty to erasing IRS files

By Mitch Betts WASHINGTON, D.C. — A 32-year-old Greenbelt, Md., man late last month pleaded guilty to computer fraud, ad-mitting he used his home er in several late night raids to destroy administrative files in an Internal Revenue Service

ers such as Ohis, he said.

William Vannest pleaded guilty in U.S. District Court under the 1984 federal stat ute protecting computers used by the federal govern-Upon sence scheduled for June 18, he faces up to one year in prison and a \$100,000 fine for each

rised access to the Zilog, Inc. minicomputer at the IRS Consulting Services Branch Baileys Crossroads, on several occasions in Pebrusry, March and April 1985, said David F. Geneson, assistant U.S. attorney. The pros ecutor said that Vannest "trashed" files used by the IRS branch for testing com-

mercial software products Vannest apparently ob-tained the telephone number for the system and its superer password — in this se, the word Zeus — when

he was writing a contract proposal for a firm trying to sell software to the IRS, Gen-

sell software to the IBS, Gen-cason said.

After an IBS systems ad-ministrator noticed that files in the 23log computer had been destroyed, he installed a program to monitor the in-trusions and routed the hack-er's call to thought of the con-case of the control of the con-case of the control of the con-center and the control of the con-trol of the control of the con-center and the control of the con-trol of the control of the con-trol of the control of the con-center and the control of the con-trol of the control of the con-trol of the control of the con-center and the control of the con-trol of the control of the con-trol of the control of the con-center and the control of the con-center and the control of the con-trol of the con-trol of the control of the con-trol of the con-trol of the control of the con-trol of the con-trol of the control of the con-trol of th that the invader knew he was destroying private IRS files, IRS officials added a es, into ornerate according to option access only," Gene-n said, in order to meet the outrements of the statute.

one at 2:56 a.m. on April 9. 1985 and another at 3:17 p.m. on April 11, 1985. The

to Vannest's residence, and he was later arrested. Geneson reported

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he Producers, 360 Merrimack St., swrence, Mass. 01843. MAY 28-30, WASHINGTON, D.C. Stategic Data Pianning and Mod-ing. Contact: Barnett Data Systems, Orchard Way N., Rockville, Md. MAY 29-30, SAN FRANCISCO — Unix In Focus. Contact: International Data Corp., Suite 201, 3350 W. MAY 29-31, BLACKSBURG, VA.

York, N.Y. 10020.

 Personal Computer Interfacing for Scientific Instrument Automa-tion. Contact: Linda Leffel, Virginia Polytechnic Institute and State University, Blacksburg, Va. 24061. MAY 30-JUNE 2, ATLANTA — Society of Telecommunications Consultants Spring Conference. Contact: STC Headquarters, Suite

1410. One Rockefeller Plaza, New **WEEK OF JUNE 1**

JUNE 2-5, DETROIT — Vision '86 — Applied Machine Vision Con-ference and Exposition. Contact: Vi-sion '86 Public Relations, Machine Vi-

Bayshore Road, Palo Alto, Calif. 94303. Manufacturing Engineers, P.O. Box 930, One SME Drive, Dearborn, Mich.

48121. JUNE 2-5. NASSAU BAY, TEX-JUNE 2-5, NASSAU BAY, TEA, AS — International Symposium on Ada Programming Language Appli-cations for Space Station Develop-ment. Contact: University of Hous-ton — Clear Lake, 2700 Bay Area

ton — Clear Lake, 2700 Bay Area Blvd, Houston, Texas 77058. JUNE 2-6, BOSTON — Barmon Associates Seminars and Work-shops. Contact: Harmon Associates, 151 Collingwood, San Francisco, Calif. 94114.

Calif. 94114.

JUNE 4, SAN FRANCISCO —
How to Build Your High Tech Career Network. Contact: Association for Women in Computing, Bay Area Chapter, Suite 44, 55 Sutter St., San Francisco, Calif. 94104.

JUNE 4-6, BOSTON — Engineersion Association of the Society of ing Expert Systems. Contact: Har-

mon Associates, 151 Collingwood, San Francisco, Calif. 94114. JUNE 4-6, SAN DIEGO — 1986 National Educational Computing Conference. Contact: Susan M. Zglic-zynski, National Educational Com-puting Conference 1996, School of Education, University of San Diego Alcala Park, San Diego, Calif. 92110. JUNE 5-6, CLEVELAND

North Central Region Data Process-ing Trainer's Conference. Contact: Gary Livingston, Livingston & Asso-ciates. P.O. Box 30619, Cleveland.

ciates, P.O. Box 30619, Cleveland, Ohio 44130. JUNE 7, BELING — China-Di-dacta '96: The International Trade Pair for Educational Equipment. Contact: Swiss Industries Pair, Secre-tarist China Didacta '96, P.O. Box CH-4021, Basel, Switzerland.

WEEK OF JUNE 8

JUNE 8-11, NEW ORLEANS — Ethernet Decision-Makers Group Exchange Conference. Contact: EDGE International, Inc., Suite 260, 1539 N. China Lake Blvd., Ridge-crest, Calif. 80558. crest, Calif. 93565.

JUNE 9-10, TEANECK, N.J. —

Machover on Business Graphics.

Contact: Carol Every, Industry Representative, Frost & Sullivan, Inc.,

106 Fulton St., New York, N.Y.

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JUNE 9-11, MYRTLE BEACH,
S.C. — The Association of Small
Computer Users in Education 19th
Annual Summer Conference. Contact: Jack Cundiff, Horry-Georgetown Technical College, Conway, S.C.

JUNE 9-11, NORCROSS, G

— Time and Motion Study Pundmentals. Contact: Institute of Indu
trial Engineers Registrar, 25 Technogy
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WEEK OF JUNE 15

JUNE 15-20, LONG BEACH, CALIF. — 1984 Gevernment Man-agement Information Sciences Con-ference. Contact: Tom Lang, Assi-tant Chalirman, Data Processing Department, 9150 E. Imperial High-way, Downey, Calif. 9042. JUNE 16-18, UNIVERSAL CITY, JUNE 16-18, UNIVERSAL CITY, CALIF. — Synengy '86, Conference on Functional Interfacing for Com-puter-Integrated Manufacturing, Contact: Society of Manufacturing Engineers, P.O. Box 800, One SME Drive, Dearborn, Mich. 48121. JUNE 16-20, CAMBRIDGE,
MASS. — Managing Information
Technology: New Responsibilities
is a Changing Environment. Contact: Center for Information Systems
Stems School of Managing search Slean School of Manage nt. MIT. E40-193, 77 Massa

tts Ave., Cambridge, Mass. 02139. JUNE 17-18, PLYMOUTH, MICH Bebotic End Effectors: Design and Applications-Seminar. Contact-Mary Dombrowski, Special Programs Division, Robotics International of the Society of Manufacturing Engineers, One SME Drive, P.O. Box 800,

Dearborn, Mich. 48121.

JUNE 17-19, ATLANTIC CITY —
Plas-Tech '86. Contact: Delia Associates, P.O. Box 338, Delia Marketing

Communications Center, White-house, N.J. 08888. JUNE 18-20, TOKYO — Market-ing Opportunities Seminar. Contact:

Agnes M. Pavel, Program Director, U.S. Telecommunications Suppliers Association, Suite 1618, 333 N. Mich-

igan Ave., Chicago, Ill. 60601. **WEEK OF JUNE 22**

JUNE 22-27, PHILADELPHIA -Management Information Systems for Strategic Advantage. Contact: Office of Executive Education, 200 Vance Hall, The Wharton School of

Vance Hall, The Wharton School of the University of Pennsylvania, Phil-adelphia, Pa. 19104.

JUNE 23-25, ALBUQUERQUE, N.M. — Integrated Fiber-Optic Technology Training, Contact: Linda Castle, Optoelectronic System Con-sultants, P.O. Box 35525, Albuquer-que, N.M. 87176.

JUNE 23-25, MIAMI — Electron-le Data Processing Auditors Associ-

ation 14th Annual International
Conference. Contact: EDPAA, P.O.
Box 88180, Carol Siream. III. 60188.
JUNE 23-26, BOSTON — ATE
East '86. Contact: Registrar, MorganGrampian Expositions Group, 1050.
Commonwealth Ave., Boston, Mass.

JUNE 23-27, AMSTERDAM — Fourth Annual European Fiber-Op-tle Communications and Local-Area

tle Communications and Local-Area Networks Exposition. Contact: In-formation Gatekeepers, 214 Harvard Ave, Boston, Masso 20134. JUNE 23-27. CHICAGO — A/S. C Systems '96': The Computer and Management Show for the Design and Construction Industry. Contact: Conference Director, A/E/C Systems 86, P.O. Box 11318, Newington,

onn. 06111. JUNE 24-26, CHICAGO — Str JUNE 24:26, CHICAGO — Structured Techniques Association III/ Structured Techniques in the Eightiese Practice and Prospects. Contact Mary Anne Gabriel, Heller Financial Corp., 105 W. Adams St., Chicago, Ill. 60603.

JUNE 24-27, CHICAGO - Ante cad Expo '86. Contact: William Ryan, Autocad Expo '86, Autodesk, Inc., 2320 Marinship Way, Sausalito, Calif. 94965.

Calif. 94965.

JUNE 25-26, COATESVILLE, PA.

— Chester County Expo '86: CAD'
CAM Conference from Micro to
Milal. Contact: Lee Smith, Central
Chester County Vocational Technical
School, 1635 E. Lincoln Highway,

Coatesville, Pa. 19320. **WEEK OF JUNE 29**

JULY 2-3, LAS VEGAS - Pull Meeting of the Design Automation Standards Subcommittee. Contact: Waxman, Design Automation dards Subcommittee Co-Chairandards Subcommittee Co-Chair-in, IBM FSD, 9500 Godwin Drive,

WEEK OF JULY 27 JULY 28-30, RENO, NEV. 1986 Summer Computer Simulation Conference. Contact: The Society for Computer Simulation, P.O. Box 17900, San Diego, Calif. 92117.

WEEK OF AUGUST 3

AUGUST 4-8, ANN ARBOR, AUGUSI 4-6, ANN ARDOM, MICH.—Contemporary Data Communication Networks: Plansing, Management and Computer-Based Design. Contact: Engineering Summer Conferences, 300 Chrysler Centre? N. Campuse Am. Arbor Mich.

WEEK OF AUGUST 10

AUGUST 11-14, SNOWMASS COLO. — AM/FM International Nisth Annual Conference. Contact AM/FM International, Suite 820, 8775 E. Orchard Road, Englewood. Colo 80111

WEEK OF AUGUST 17

AUGUST 18-22, DALLAS —
dirtnenth Annual Conference on
majuter Graphics and Interactive
chainiques. Contact: SIGGRAPH '86,
onference Management, 'Smith,
ockitin & Associates, inc., 111 E.
acker Drive, Chicago, Ill. 60601.



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COMPUTER INDUSTRY

Section begins on page 146

Paradyne anticipates stable year after tumultuous 1985

Hopes to come back from losses, layoffs, key fraud indictments

James A. Mortin LARGO, Fla. — After a tum

us year in which five company offi-ers were indicted for fraud, revenues declined, losses were reported layoffa occurred and takeover ru-mors buzzed, Paradyne Corp. is predicting a comparatively quiet year for fiscal 1986. But the data commustions vendor's troubles are far

ere was both good and bad news from Paradyne recently. Net income for the first quarter ended March 31 was modest but rose to \$875,000, pared with \$151,000 a year earli But revenue was \$66 million er. But revenue was \$66 million last down slightly from \$68 million last year, and the company announced the clossing of a manufacturing plant in Puerto Rico. Orders were up 20% over the same period in 1986, but shipperels were down 13%.

"Therefore, the company is cao-us about the outlook for the remainder of the year," says Robert S. Wiggins, Paradyne's president and chief executive officer, who was inlewed recently in his Largo office. "The softness experienced by the industry in 1985 has not subsided. Management actions taken last year have resulted in lower ongoing expenses, and we will continue to maintain a tight control on apend-

The shutdown of the Puerto Rico peration, which opened in 1979 and employed 165 people, is expected to save the company \$1 million this year and \$3 million the next. Manued at Paradyne's Largo faciliAs an additional austerity m radyne will require that all U.S. nhourly employees take one un-id furlough day per month for the nainder of the year. Last July, the spany laid off 150 of its 3,700 emented a series of

paid furlough days. But aside from its doldrums, Paradyne's

most publicized problems at the moment is 45-page ment from a federal nd jury that acfive current and three former officials and a former U.S. Social Se curity Administration



Administration in 1981 "The company regards the charges as outrageous and so lacking founda-tion as to be ludicrous," James Stat-tery, senior vice-president and general counsel for Paradyne, said at the

In the meantime, Paradyne has been barred from bidding on any goverrument contracts, and the case is cheduled to come to trial Sept. 8. However, Wiggins says the indictints and the government barring

ave had little impact on Paradyne.
"Obviously it affects our governnt activity, but that's never been very high, so it's not a major probl for us," Wiggins says. "Our custo ers primarily buy from us because we do a good job. A great deal of our s each year comes from our

installed base, and I don't believe our ability to do business with our cus-tomers has been affected at all." Irwin Silverberg, a senior partner and analyst with Silberberg, Rosen thal and Co. in New York, agrees. "I don't think their cust

them to be crooks," he SAVS. says. "My guess is that their customers think Paradyne is being victimized by the errument The task of steering Paradyne toward a significant profit. profit, which Wiggins says should happen this year, is a formidable

one. Part of that strat egy is to rec strengths and weak pesses in existing ect lines as well as recognize opmities for new markets, both ort and long term

One area that has come under crutiny is packet-switching devices.
"We have been in that market for two years now, and we haven't seen a great deal of results from that, Wiggins says. "But we are going t "But we are going to continue in that market because we think there is potential for the long haul." Paradyne recently introduced its PDN 5200 family of packetswitching products at the interface

vention in Atlanta In the past, packet-switching was

"normally associated with expensive networks, and they primarily han-died asynchronous devices," Wiggins

Today, the technology allo to put in a network at a much lower cost with asynchronous and synchronous devices, with some nice attri butes of being able to provide redun combining multiple networks into one. So, it has all the advantages you would like in a data communications network, but for some reason the market just hasn't moved," Wiggins adds. Paradyne also hopes to make a strong move into the T1 network

market. The company has a technol-ogy and manufacturing license with ogy and manufacturing license with Spectrum Digital Corp., a Herndon, Va., multiplexer vendor, for a thirdgeneration T1 switching multiplexer ne to be introduced later this year. The emerging Integrated Services Digital Network (ISDN) standard is

too premature at this point to become the focus of product development, Wiggins says. "I think a lot needs to be done before anyone totally understands ISDN and what effect it might have on the marketplace," he adds. Despite the federal indictment Paradyne's problems have been more "internal than external," according



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Adding or utilizing disk caching. Too often, information that should be in main memory ends up exiled to disk memory: 4. Moving up to HP's new enhanced Turbo-

IMAGE" or any other database management

5. Ruming software applications that "hog" your system's memory. These including HPWORD" or other word processing programs... graphics packages like HPDRAW... and spreadsheet packages such as 1-2-3" or and spreadsheet

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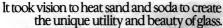
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GTE, Fuiitsu plan venture to develop, market PBX tools

Target North American mart

By Alon Alper STAMFORD, Conn. — GTE

Corp., as part of a continuing plan to forge key strategic al liances, recently reached a preliminary agreement to esablish a joint venture with Fujitsu Ltd. to develop and market private branch ex-changes (PBX) and related unications equipment

Under terms of a "me randa of understanding," majority ownership of the majority ownership of the company will be held by Pu-jitsu America, Inc., Pujitsu's North American peripherals and communications subsid-iary, a GTE spokesman said. A definitive agreement, which would specify finan-

cial terms and management arrangements, is expected to be worked out by year's end The new firm would iniand marketing of the Omni S1, S2 and S3 PBXs from

GTE's Communications Systems' Business Systems divi-

It would also develop new PBX products and perhaps

market some of Pujitsu's existing communications prod-

If formed, the joint venture would enable GTE to share development costs and combine technology with a leading electronics firm at a critical time in the extremely competitive PBX market-place, the GTE spokesman

"It's difficult to keep up today," he said. "The investment required is much great-er than in the 1960s or 1970s

when the equipment was pri-marily electromechanical. PBXs are now specialized computers that sit on some-one's desk, offering options

speed dialing. Earlier this year, GTE said

it was forming two other It is in the midst of meld-

ing its Sprint long-distance telephone service with a similiar offering from United Telecommunications, Inc and is attempting to cor its central office switch busi-Siemens AG (see story be-

Siemens, GTE negotiations at standstill

By Boats Knouse Computerworld News Service

MUNICH - Siemens AG. Germany's leading electron ics and telecom firm, and GTE Corp., the U.S. telecommunications firm, have not yet succeeded in working out details of their recently announced joint venture. Spokesmen for both firms refused to comment on the stalled negotiations.

77

The firms are having trouble agreeing on which telephone switching system to distribute.

The plan to establish joint company for the development of communications equipment was announced in mid-January. Siemens hopes to sell its telephone switch-ing systems to 15 GTE offices as part of the deal. According to Sean White

president of New York-based market research firm North-ern Business Information, Inc., the companies are hav-ing trouble agreeing on which telephone switching system to distribute through the joint venture. White also speculated that other sources of contention are disagree nts over management of the firm and the question of whether to integrate the GTE production plant in North lake, Ill.; into the new firm.

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id of technical assistance? Well, join the crowe The fact is, this last and most critical link in the video presentation chain has been suffering fr

which automatically senses where on the horizont and vertical frequencies the computer signal is, a then locks in on it. And if interfaces perfectly with 80% of the computers on the market today, include micros through mainframes. And it's plug-comput ble with a 25-pin analog digital connector and a 9-189M-compatible connector.

COMPUTER INDUSTRY

Retail dealers turning Blue

From page 146

down on the gray market — those sneaky unsuthorized dealers that often steal highvolume corporate sales away from IBM's own direct sales The freeze touched off a wave of consolidation in the

petition on all fronts, in-ing IBM direct sales. Auorized stores became hot rties for expansion oded chains, which ight them as if they were ing out of style - which

This has not only given IBM more leverage over its dealers but is also helping to quicken the demise of the independent computer deal-ers whose business was once based upon personal service

ready smarting from price and product knowledge. Per-haps manufacturers of blue suits should step up produc on, since the computer retail channel is quickly beginning to look much like IBM

Ironically, these moves co from direct retailing with the recent sale of all S1 IBM Product Centers to Nynex Corp. IBM obviously feels that the best way it can use

its muscle in this channel is by keeping a tight rein on its resellers. But it is uncertain whether IBM can control

Nynex which may have competing interests vis-a-vis AT&T. One thing is certain IBM authorization for Nynex will be no problem

For the time being, the winners in the IBM retail ame are clearly the major outer retail chains, parurly Businessland. Inc. which has been expanding at a rapid rate and recently

purchased two 36-store company-owned chains

thin two weeks One loser in all this may or may not be Compaq. As IBM increases control over its dealers, it becomes much

easier to squeeze the compa-tibles out of the dealer channel But based on past performance, few expect Compaq to sit still, and industry sources report that the firm will introduce a sub \$1,000 machine as well as an Intel Corp. 80386-based ma-

chine by year's end, both of which are sure to keen it in the running

Thrust No. 2 in IBM's eepening control over the retail marketplace was made on April 2, with a slew of IBM anouncements that may mark the beginning of the end for many add-on board

It now costs a com dealer the same amount to take a base IBM Personal Computer AT and build it up with hard disks and added memory as it does to buy an enhanced AT from IBM, mak ing one of the dealers' favor ite pastimes no longer profit-able. In addition, the new IBM Personal Computer XT now comes with 256K bytes on the motherboard, which can be expanded to 640K

bytes.
Already, third-party
board makers are dramatically cutting prices to make their products attractive to sers who haven't yet boosted memory, and some board makers, such as Tecmar, Inc., have begun laying off nployees. And the bloodlet ting among hard disk drive ers may begin any time, you listen to dealers.

IBM's efforts to control its dealers and squash third-party add-on firms has led to resurgence in speculation about IBM's next move, which could be in the area of microcomputer software.

sing com At the April 2 series of

announcements, IBM Entry Systems Division chieftain William Lowe warned that firms will have to work in-creasingly hard to remain compatible — which is just as much a warning to users that they should increasing ly buy IBM to remain com-patible. When 80386-based machines begin to take over, some analysts expect IBM to introduce several different machines, making compati-

machines, making compati-bility a matter of guesswork. The IBMification of the re-tail channel might create a significant barrier for those small firms hoping that inno vation alone will get them space on retail shelves. With chains pulling the strings in the retail market place, it may be even more difficult for new or small firms to get



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NSC, Concurrent join forces

To introduce 32-bit supermini by 1989

TOKYO - In the first move of its nd by a steel maker, Nippon Steel ep. (NSC) has decided to enter the mputer business by establishing a at venture with Tinton Falls, N.J. and Concurrent Computer Corp. in pan this month. Under terms of the own and month. Under terms of the eliminary agreement, the firm, occurrent-Nippon Corp., will intro-ce a 32-bit superminicomputer in 88 or 1989.

For the first years, the scope of op-

ized at \$1.5 million and will be be ed by a Concurrent executive to be appointed later, will focus mainly or importing and marketing Concur-rent's 32-bit machines for the Japa-

se market, a spokesman sald. 60%, with NSC holding the remainder. The cooperative company ex-pects \$600,000 in sales in its third

Japan's Daiwa Securities Co., which coordinated the merger negoti-ations, said Concurrent's increased interest in the Japanese supermini market meshed well with NSC's hope

European group to monitor U.S. investigations into Japanese trade

LONDON - European chip mak-ers took the first step toward stop ers took the first step toward stop-ping possible Japanese semicondu-tor dumping by establishing a working group to monitor current U.S. investigations into Japanese trade practices. Dumping duties have already been imposed on some Japa-nese semiconductor firms by the U.S., and U.S. government and senior trade officials are now holding exten-

trade officials are now nothing exten-sive talks with the Japanese. European industry officials ex-pressed concern that they do not have a voice in these talks. Europe is

also anxious to block reported U.S. proposals to put a floor price on chip

sales.
"It would just put more money into the hands of the Japanese and the U.S. companies as well," said the director general of the Electronic Components Industry Federation, a UK trade association. "It isn't satisfies factory for the issue to be sorted out bilaterally. It needs to be done on a

global basis."

The U.S. antidumping duties do not cover chips manufactured by Japanese firms in third-party countries. Japanese companies are al-ready shifting production volumes to

NEC Corp. announced plans earlier this month to increase production in the UK, and Toshiba Corp. said it in the UK, and Toshiba Corp. said it will increase production levels it will increase production levels in West Germany by a factor of five. Its stated intention is to increase units produced each month from around 400,000 to about two million by July

this year. Japanese manufacturers airendy hold about 80% of the world chip market, valued at roughly \$1 billi

Committee bill revives tax credit

group's members are "glad to see that tax reform is on track." He called the

tax reform is on track." He called the committee bill a "major step toward a brighter future for high technology." The next steps for the tax reform effort are consideration by 'the full Senate, where amendments to the Finance Committee's bill are possible, and then an all-important conference between the Senate and the U.S.

between the Senate and the U.S.
House of Representatives to negotiate compromises on the differing
House and Senate tax packages.
From the industry's point of view,
the Senate Pinance Committee bill is
an improvement over the Housepassed bill, although industry lobbyista privately grumbled that they still did not get a permanent extension of the R&D credit.

the R&D credit.

The House bill would extend the R&D credit for three years at the reduced rate of 20% and cut the top corporate tax rate to 36%. Both the House and Senste committee bills would repeal the 10% investment tax

could repeal the 10% investment tax-redit; a move that would alightly also the cost of buying or leasing imputers and other equipment. The Coalition for the Advances to High-tech firms and univer-tees supporting the R&D credit; raised the Senate Finance Commit-ter a bill on grounds that loss of the oppositive disadvantage.

"The a day-locally basis, we must

tion and an M/A-Com, Inc., execu-e. "Japan, for example, has had an ID tax credit since 1966," he said.



COMPUTERWORLD

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Warehouse sale boosts resale mart

By Poggy Wett
SANTA ANA. Calif. — A recent

SANTA ANA, Calif. — A recent nine-day microcomputer garage sale drew more than 17,000 buyers for excess inventory from 450 Computer-land Corp. stores across the country, encouraging aftermarket advocates to herald the pince of resale in the

tomers who snatched up about \$20 million worth of equipment at the Microcomputer Inventory Ex-change ranged from corporate computer managers to garage-sale-spirit-ed hobbyists searching for scarce parts to older systems. Prospective parts to older systems. Prospective customers 'waited more than two hours to get into the saic, according to Fred Brown, president of Fred Brown Associates in Santa Barbara, Callf., which coordinated the sale. Brown, publisher of the 2-year-old

"Brown Book" guide to used comput-er prices and a longtime advocate of the resale market, said he thinks the success of the sale underscores the need for a legitimate resale and inventery reduction market for high-

"People are realizing an industry within an industry in the aftermar-ket." Brown said. "Early buyers need to be able to move up, but they can't abandon their equity." Brown has built a business out of moving excess inventory for computer con having cut his teeth on the techniq

the now-bankrupt original Or orne Computer Corp.

IBM and Compaq Computer Corp.,
owever, refused to allow even some of their older products in the Compuouse sale. The cor

nies said the co-op sale was cont. to their dealer agreements. Apple Computer, Inc. allowed saie of only der products that are no longer on the company's price list.

Japanese chip makers to develop SOR equipment

TOKYO - Japan's 13 largest se conductor suppliers, including NEC Corp., Hitachi Ltd. and Fujitsu Ltd., have agreed to join hands in a \$90 million, 10-year government project to develop synchrotron radiation (SOR)-generating equipment, needed to build next-generation semiconduc-

As an initial step, a joint R&D firm may be established in June. Accord-ing to Japan's Ministry of International Trade and Industry (MITI), the ring-shaped SOR generator accelerstes electrons and light at the same

socity. MITI said that full availability of SOR systems will be a shortcut to the manufacturing of 16M-byte dynamic random-access memory chips, the devices 16 times more powerful than

Entrepreneur charged with software piracy

By James A. Mortin TORONTO — In what is said to be one of the first cases of its kind in Canada, a Toronto entrepreneur faces a total of 10 criminal charges for allegedly reproducing and distrib-uting illegal copies of microcomputer

During a recent hearing, Provin-cial Court Judge Fred White requested that four counts of theft be added to the list of charges already facing

Terence Ram, a Toronto busine who operated a company called TR

Ram is accused of supplying customers with illegally reproduced software and instruction manuals for such programs as IBM's Displaywrite

2 and Quald Software Ltd.'s Copy-Ram faces 10 charges including fraud, theft and trademark forge according to a Toronto attorney, w

sked not to be identified. TR Soft are allegedly sold the una software programs for as little as \$9 and advertised its services regularly in Toronto newspaper classified ads and a catalog

The charges cover the period of Feb. 11 to Sept. 18, 1985, at which time the Royal Canadian Mounted Police, acting on a tip, seized the prop-erty and assets of Ram's company. IBM and Quaid, among other ven-dors, had received numerous calls for sizing stiffer penalties and more federal investigation and involvement in support from unregistered users and software piracy cases in the U.S.

relayed their concerns to Canadian authorities, the source said. Because this case repre "new type of prosecution," it will be difficult to estimate what penalties

the defendant might receive if found guilty, the attorney said. "This is a very new kind of case in Canada, so it is hard to say how a court will consider the penalties."

David B. Sturtevant, senior director of public communications for ADAPSO in Arlington, Va., said it was the first software piracy case in Canada to come to the organization's attention. ADAPSO has been empha-

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fustry experts will instruct ful day courses on network control IBM/SNA network managemen

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Ashton-Tate settles NTS suit out of court, pays Safeguard \$250,000

By Dougles Barney TORRANCE, Calif. — In a rec out-of-court settlement, Ashton-Tate Business Systems, Inc., owner of Na-tional Training Systems, Inc. (NTS), a firm cofounded by Ronald S. Posner, Ashton-Tate's current executive vice-president of sales and interna-

tional marketing.
NTS was hired by Ashton-Tate to develop training manuals and sales aids for Ashton-Tate's Framework and Dhase software packages. Ash-ton-Tate refused to pay for the work. ing NTS to sue for breach of co

"I don't think any of it was actual-1 don't think any of it was actual-ly used," said Stanley Witkow, attor-ney for Ashton-Tate. Safeguard's at-torney, Thomas Schneider, was also unsure whether Ashton-Tate used

any of NTS' goods or services.

While NTS developed the products, from the fall of 1983 through the summer of 1984, Posner was still with NTS. "At the time the work was NTS, and at the time the suit was being litigated, he was with Ashton-Tate. That sort of put him in an unal position," Schneider said. bener was unavailable for com-

Zilog to make AT&T chip

Firm picked as alternate vendor of 32-bit chip set

BERKELEY HEIGHTS, N.J. ATAT last week designated Zilog. Inc. as the first alternate source vendor for its 32-bit Unix chip set, the

WE32100 Zilog, which uses the AT&T ch as the microprocessor in its own 32 bet supermicrocomputer, will manu-facture the WE32100 for five years. The Campbell, Calif., semiconductor vendor also has the option to develo and market new products based on AT&T technology and license them to AT&T. The Zilog-made WE32100

chips will carry the Zilog label and will be marketed by Zilog's direct

John M. Nemecek, AT&T's executive vice-president of components and electrical systems, said agreement came in response to cus-tomer demand. "Our customers told us they wanted the assurance of an Iternate source of supply as a dem

estration of our commitment to this rketplace," he said marketpiace, he said.

Zilog, developer of the pioneering
8-bit 280 microprocessor, is a wholly
owned subsidiary of Exxon Corp.
Founded in 1975, Zilog was not prof-

itable until 1984 and last year laid off approximately 400 of its 2,100

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Hitachi, Fuiitsu profits to decline

TOKYO - Hitschi Ltd and Fujitsu Ltd. are expected to report sharp do clines in profits for the last fiscal year, blaming the semiconductor in-dustry's recession and the Japanese yen's seemingly incessant surge value against the U.S. dollar.

Like many Japanese companies closing their fiscal years in March, Hitachi and Pujitsu have yet to issue final financial statements for 1985. However, at Pujitsu, profits report-edly may shrink more than 60% from

the year before to around \$250 million on revenue of \$8.9 billion, up about 10% from 1984 levels. Puittes expects to announce that sales of computers reached roughly

\$6.26 billion, up 18% from the year before. The company, meanwhile, predicts a 25% growth in sales of sunications gear, while the company's memory products line will suffer an estimated 25% drop to sales of \$1.2 billion.

Echoing Fujitsu's story, Hitachi cited the erratic fluctuations in yen-dollar exchanges and the semicondollar exchanges and the semicon-ductor slump as primary reasons for its gloomy forecast of a 40% profit decline for fiscal 1985. Hitachi forecasts 1985 profits of \$1 billion on revenue of \$18.7 billion,

up just 1% from a year ago. The semi conductor division is expected to earn \$2.7 billion, down from 1984's

\$3.4 billion. Hitachi said that despite a rapid ery in chip sales, market prices are far from restored to healthy lev-

According to one company official, a 256K-byte dynamic random-access ey chip now sells for an aver-rice of \$2.10 in the U.S. versus average price of \$22 at the end of

The bullish Japanese currency against the U.S. dollar is also expect-ed to reduce Matsushita Electric In-dustrial Co.'s profit by some 25% ng the current financial term.

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"Because of the new contacts that Computerworld produced on both the client and condidate sides, we decided to increase — actually double — our advertising in 1786." he adds. "We've considered other publications, but we know that our dollars stretch further with Computerworld. It allows us to hit our kargest audience," concludes Mex.

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Data communications vendor Ava-tar Technologies, Inc. of Hopkinton, Mass., recently sequired Matrix Communications, Inc. of Marblehead, Mass., for an undisclosed sum In addition to its protocol converters. micro-to-mainframe links and other products, Avatas munications will now market as the Avatar Alliance Matrix's sole product, the entrylevel Alliance local-area network.

Matrix introduced the Alliance last fall and installed the network at some beta-test sites, but needed some financial help to market the product.

The Standard Register Co. and Burroughs Corp. have entered into an agreement whereby Standard Register will purchase the assets and op-

ister will purchase the assets and op-erations of the U.S. Business Forms Division of the Office and Media Products Group of Burroughs. The purchase agreement provides for change of ownerahlp on June 1. The boards of directors of both com-panies have approved the transac-The purchase price is in excess of \$100 million.

National Business Systems, Inc. has reported that Transact Data Ser-vices, Inc., an affiliated company. has completed the purchase of all of the outstanding shares of MSS/DP, Inc., a Toronto-based data processing consulting and software develop-ment firm. Terms of the purchase agreement were not disclosed

Decision Data Computer Corp. announced the acquisition of Pana-tee, a computer software and operattee, a computer software and of ing system developer based in den Grove, Calif.

Decision Data purchased Pan Decision Data purchased Panatec in order to support the company's strategy of developing advanced computer products and vertical market applications software. Panatec is composed of a systems software group, a customer software group and a robotic systems group. Decision Data also announced the acquisition of the Beverage Systems Division of Endata, Inc. of Nathville.

ville.

The acquired business will become Decision Beverage Systems Corp., a wholly owned subsidiary of Decision Data to be headquartered in Charlotte, N.C.

lotte, N.C. Decision Data purchased the oper-ation to expand its position in the IBM System/34, 35 and 38 software market. Endata's Beverage Systems division supplies turnkay systems and software for the U.S. wholesale beverage industry.

Softech, Inc. of Waitham, Mass., s acquired AMG Associates, Inc. Arlington, Va., in a stock purchase assaction. AMG Associates is a ding designer of custom software stems and related applications for oyseem and research appealables for automatic test equipment, a major component in the production and readiness of government and indus-trial systems. AMO Associates re-ported revenue of \$3.4 million in cal-endar year 1985.

additional 31%, in Mimer Informa-tion Systems AB, a Swedish developer and marketer of integrated rela-tional data base software.

The agreement grants issee exclusive rights to market Mimer products in North America, U.S. territories and Pacific Basin countries. Mimer will remain a separate company and continue its software development and European marketing under Presi-dent Sven G. Johansson, a company

Continental Telecom, Inc. (Con-tel) announced that American Satel-lite Co., a Contel unit, has signed a

finitive agreement to acquire the estern Union Telegraph Co.'s prerament Systems Division. The transaction, valued at \$155 million, includes certain trans sion, maintenance and administrany based in San Francisco.

tive services to be provided by West-ern Union to American Satellite

were not disclosed.

. Nynex Corp. has announced it has acquired Telco Research Corp., which develops and markets inte-grated software products and services designed for telecomunications and information systems managers to manage their telecommunications re sources. Terms of the acquisition

Pactel Communications Cos. re-ported that two of its subsidiaries, Pactel Communications Systems and Pactel Infosystems, have been olidated into one company. The newly integrated company is a sub-sidiary of Pacific Telesia Group, the telecommunications holding compaPactel Communications Systems of Walnut Creek, Calif., sells, installs computer hardware products to ma-

Pactel Infosystems, based in San Leandro, Calif., markets business telephone and microcomputer systems through direct sales, telemanketing and retail centers.

Hale Systems, Inc. has completed the previously announced sale of substantially all of the assets of its subsidiary, Bankline, Inc. of Phoenix, to Security Pacific Information Systems, Inc., a subsidiary of Security Pacific Corp.

Hale Systems develops and markets specialized computer services, data bases and software products and systems primarily to financial and investment services industries.



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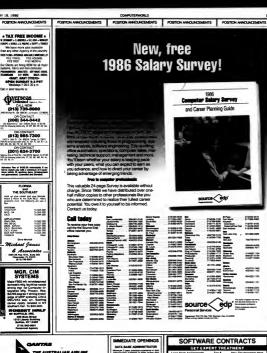
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lion in two months after commening operations Jan. 29, 1986.
The supermini and supermicro vendor grew out of the former Basic Four Information Systems Division of Management Assistance, Inc. after the latter was split up and sold by arbitrageur Asher B. Edelman.

Computer Associates International, Inc. announced a 48% review new increase and a 42% profit gam for the flacal year ended March 31. The Garden City, N.T., software vendor earned \$18.5 million, or \$5 cents per share, on sales of \$191 million. For the fourth quarter, revnew increased 50% from year-sariere levels of \$200 per section of \$200 per section of \$200 per section of \$200 \$200 per section \$200 \$200 per

Two Dalias-based software houses, Ureed Corp. and Sterling Software. Inc., reported sizeng carnings for the quarter ended March 31. On revenue of \$37.5 million, Ureel earned \$2.6 million, or 16 cents per share; including 3 cents per share from a one-time capitalization of software development expresse. A pure carrier, Ureel earned toom on alse of \$31.9 million. Sterling Software carned \$1.9.

million, or 17 cents per share, on revenue of \$58.8 million. In the pear-earlier quarter, the firm reported a profit of \$629,000, or 13 cents per share, prior to the acquisition of informatics General Corp.

Hewlett-Packard Co. has restored full-time, full-pay conditions to most of its employees, but it is implementing a hiring reduction throughout the company. Since two days per month of unpaid vacations and a 10% pay cut were implement col last August, about 40% of the em-

ployees have gone back to full pay and full-time work. Orders at HP remain under pressure, however. "Our order rate, while it isn't all that bad, isn't all that good," a company spokesman

Workstation manufacturer
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San Jose, Calif., laid off nine of its
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AT&T information Systems, plans
to take its meanfacturing facilities

In an ironic vastor of events, New Hampahire a liver of Thomas Hampahire and the secondary in the property of the Haw was a manch of the board of direction of the Haw ward, Calif., minicomposite eventure in the only remaining unit of Mohawit Data Sciences Copy, after its recent

out of house

IBM partnership a boon to Hogan

From page 146

Camponton said

Pretax losses ran up to \$13.8 million in 1985 and \$6.9 million in fiscal 1986, which ended March 31. Revenue dropped from a high of \$36 million in 1984 to \$23.5 million in 1985 and \$27 million in 1985.

Carpenter said Hogan has repaired its integrated loan package, which consists of commercial loan, consumer loan and mortgage lending systems. But he said Hogan's credibility problems are "sitli lingering That's where the agreement with IBM will

One major Hogian competitor, Uccic Corp. of Dallas, does not feel threatened by the pairing of Bogan and IBM "Over the last four most of Hogian four times and sold our products to all four citients," said Donada L. Scelee, vice-president and general manager of the Financial Systems Division of Ucci. "We look forward to meeting them in the marketplace." IBM will have the first right of refusal on future Hogan products, Campbell said, and will provide the front line of support: installation and telephone hot-line service. Hogan will provide the backup diagnostic support and will send a technician to the site when one is needed, he said.

Hogan is noted for selling software to 140 large banks worldwide. It typically boasts that it sells only to institutions with \$1 billion or more in as-

A L least one industry follower, however, was pensited by the match-dup. "It is rather curious," said Bick. Sherlund of Goldman Sachs & Co. "Marshall & Bisey Corp. has 185-based products. Why doesn't IBM sell by that product line?" Sherlund said hos gan produces large applications that is "are not very considerate of machine cycles, even though they are techni-

cally advanced."
The company is known to be warking on a product called Financial Information System, which some analysts think Hogan hopes to sell to
smaller institutions. But Uccei's
Sceeic says the joint agreement with
Him has added to the complexity of
Hogan's situation, with IBM selling
parkages and Hogan supporting
them. "It's not as smooth as one orgamisation doing both," be said.

New products, confidence, strong quarter boost Tandem



Noone can fault the recent stock performance of Tandem Computers, Inc. (TRUM — 31%). A combination of well-received new products, Increased confidence in the company's financial management and surprisingly strong results for the second faical quarter ended March 31 have propelled Tandem's stock price up 40%

pelled Tandem's stock price up 40% since early April. Analysts adjusted their earning: estimates after Tandem posted second-quarter earnings of 29 cents a share, when most were expecting

per-ohler carmings of 30 to 22 cents. Froderic R. Ochen, analysis with. L. F. Rosthachid, Unterberg Towhis, L. F. Rosthachid, Unterberg Towhis, Changed hie settimates to 41 35 a share for fiscal 1986 ending Sept. 30 and 41.85 a share for next year. David Wu, analysis witch S. G. Warburg, Rowe & Fitnan, Akroyd of 96 carriage estimate to 41.20 a share carriage estimate to 41.20 a share share. Such adjustments reflect 'Saskiers. Such adjustments reflect 'Sachiers where the fitness of the service of the state of the service of the service of the state of the service of the service of the state of state state of state state

sic improvements in sacrons indus"There was a time," Cohen says,
"when Tandem was not considered
serious in term of product development." But in mid-April, Tandem
Shoutage VLX, which reportedly delivers about twice the performance
of the older Nonstop TXP at twothirds the cost per transaction. Cohen mays the "VLX came right on
ment's much-improved controls or
product design and productions."

Porteus is president of Strand Research Associates, a Centerville, Mass-based company that provide customized research services for financial and high-tech firms. Tandem's near-term stock perfor ance will likely be determined by

what investors anticipate the company's prospects are for fiscal 1987. Some analysts say that Tandem's prospects in its next fiscal year are essentially tide to the timing of a turn in the U.S. computer industry. Corrently, domestic sales for Tandem, as well as for most other com-

dem, as well as for most orner computer companies, remain weak. "But Tandem's U.S. aales didn't fall off [in the second quarter] as had been expected," Cohen argues, "suggesting strong demand for the company's product line. Like Digital Equipment Corp., Tandem has the momentum of a very powerful product cycle working in 1st favor."

Donald Haback, vice-president of research at Smith Barrney, Barris Upham & Co, says, "Tandem's international business may be able to make up for much of the domestic weakness this year, especially with the currency translation factor." Its foreign operations provided 40% of

According to Warburg's Wu, the company's sales in the UK are especially strong this year because from the company's sales in the UK are especially strong this year because from the Landon-Students. Sile especially strong the Landon-Students. Sile especially strong the Landon-Students Sile especially sales become may not recurrently year, Wu expects Tundem's Duropean sales to contribute less to total revenue in 1697. If next year's than 10%, Wu says, then Tundem's but these 10%, Wu says, then Tundem's but revenue growth should be about

the same as this year?.

Based on this arcmario and the likelihood of increased competition Wu says he does not think there is much of an up side to Tandem'a stock price. To be a buyer at these levels. "You have to believe the corpany can earn \$2 a share in 1967," Wu says. Another snahyst maintair Tandem is already too expensive. But Rothichild's Cohen continu

Tandem is already too expensive.
But Rothschild's Cohen continues
recommending Tandem on its potential to reach 50 within the next 12 to
18 months, assuming "the stock
market doesn't peter out."

IBM names distribution president Goldberg to top marketing slot

ARMONK, N.Y. — Victor J. Goldberg. former president of IBM's National Distribution Division, was appointed the top marketing executive of the Information Systems Group in a number of promotions announced

a sumber of promotions announced last week.

As assistant group executive for marketing, Goldberg will be responsible for the customer sector organization. IBM's direct sales channel in the U.S. He formerly beaded the dealer/

U.S. He formerly headed the dealer/ resclier channel for microcomputers and related products. Replacing Goldberg as head of the distribution division is Ned C. Lautenbach, former assistant group executive for plans and controls of the Information Systems and Communi-

cations Group. Lautenbach is the brother of Communications Products Division President Terry R. Lauten-

ach. dditional promotions

IBM also announced the promotion of Vice-President Patrick A. Toole to group executive of the Information Systems Technology Group, replacing the late John E. Bertram, who

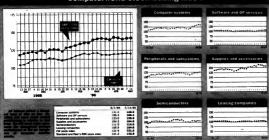
died last month.

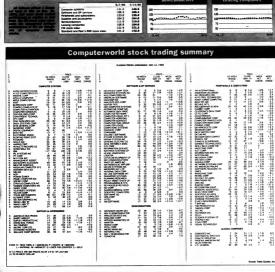
This technology division develo and manufactures IBM's semicondutors, as well as some intermedia processors and printers.

Toole had been the unit's assista

roup executive in charge of

Computerworld stock trading index





COMPUTER INDUSTRY

INSIDE After losses and

indictments, Para dyne looks for a calmer 1986/116

AT&T chooses Zilog as a second source for its 32bit Unix chip set/125

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MAI Basic Four files an initial pub lic offering/144

INSTANT ANALYSIS

"Our industry's place in the Information Age is like the auto industry in the 1920s when people drove fine cars over decent made until they came to the edge of town and the roads turned to dirt."

IBM partnership a boon to trouble-plagued Hogan

'Ironclad' agreement may alter banking software mart

Charles Babcock
DALLAS — IBM's landmark OEM agre

ment to market Hogan Systems, Inc.'s fi-nancial applications [CW, May 12] not only delivers a much-needed boost to problem-plagued Hogan but could significantly alshape of the banking software mar-

stry analysts called the 20-ye pact "the most ironclad" agreement IBM has entered into for a product line from a major vendor of vertical market applica tions. Observers said the combination of the IBM name and sales force could be enough to put Hogan's competitors under

rvere pressure.
In addition to increased sales, Hogan can look forward to an increasing stream of maintenance revenues. Hogan can cut advertising costs and continue develop-ment efforts, while a larger sales volume might prompt IBM to cut prices. looking for ways to dramstically increase sales to produce additional revenues and provide financial stability," said Donald Campbell, Hogan's vice-president for mar-

Under the agreement, Hogan will phase out its 14-member direct sales force as IBM assumes exclusive rights to market Hogar products under the IBM label in the U.S. and Canada. IRM is expected to mount a direct sales force at least three times larger than Hogan's, which will give Hogan soft-

ware access to banking markets nation-You could argue that the Hogan sales force wasn't large enough to cover all the markets in the country," said Cato D. Car-

nter, software analyst with Alex Brown

& Sons. Although additional competition is ex-pected to emerge when Cullinet Software, Inc. brings out its anticipated financial ap-plications, Carpenter thinks Hogan may repair its tarnished reputation and stay a

The agreement comes as a boon to Hogan at a time when it is still reporting quarterly losses as a result of its disastrous installation of a malfunctioning loan application package in 1985. Sales plum-meted, Hogan's Chief Executive Officer Richard Streller resigned, and 40 major fi nancial institutions had to do without as

integrated loan package they had been inting on as Hogan regrouped in effect, Hogan recalled the product,"



Retail dealers getting a case of the Blues

or years, IBM barely tolerated fun-loving microcomputer dealers the stering mainly to backers, and many of these dealers looked upon major corporations as abhorrent symbols of American capitalism. But as these dealers learned to love cor porations (or at least their deep pockets). IBM turned its seductive and adoring eyes toward them and began authorizing every Tom, Dick and Harry's Computer Store, Inc. to sell the IBM Personal Computer. Yes, for a time IBM was easy, But the gift of IBM authorization wasn't

enough to ensure the total fidelity of many dealers, which just as lovingly pushed other products, giving birth to (gasp!) competition for IBN The fabulous success of const

mate compatible maker Compaq Computer Corp., the burgeoning micro sales of an "upstart" called host of super-low-priced Asian clones all began chipping away at IBM's hopes for complete control over the computer retail market-

Sensing vulnerability, IBM has re-cently thrust its talons deeper into the flesh of computer dealers in an attempt to rescue its declining mar

ket share. And things will never be the same for the fast-declining deal Thrust No. 1 was IBM's an ment last November that it was freezing its dealer authorizations at

some 2,500 and was also cracking See RETAIL page 121

Barney is a Computerworld se ior writer covering the computer industry.

Senate committee-approved bill would revive 25% R&D tax credit

By Mitch Botts WASHINGTON, D.C. — The comp

industry is counting itself as one of the winners in the continuing tax reform struggle in the U.S. Congress. The Senste Finance Committee recently approved a bill that sharply cuts the top corporate tax rate and revives the 25% tax credit for research and development, two features that the industry has strongly supported.

However, small high-technology firms that depend on venture capital were con-sidered losers. Assuming it passes the full Congress, the committee's bill would raise the capital gains tax rate to 27% from the current 20%, a far cry from the rate reduc tion sought by the American Electro

Just when it appeared that tax reform was dying, the Senate committee emerged with a bill that cuts corporate tax rates in return for killing many tax credits and deductions. In this climate, the industry wor approval for a four-year extension of the 25% R&D credit, which expired at the end

Industry lobbying groups praised t committee's decision to retain the R&D credit and to slash the top corporate tax rate to 33% from the current 46%. Ted A. Heydinger, vice-president of the Computer and Business Equipment Manu-See COMMETTES page 122

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